(some plates missing.)

4 50

C. Birdsey.

C. B.

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SHORT HORN COW, "ROSEDALE."

Bred by LADY PIGOT, Branches Park, England; imported by and the property of M. H. COCHRANE, Compton, Canada; winner of sixteen first, besides other prizes at the Royal, the Yorkshire, and other Shows in England, and of the first prize at the New York State Fair at Rochester in 1868.

Transactions

OF THE

NEW YORK STATE

Agricultural Society,

FOR THE YEAR

1868.

Albany.

THE ARGUS CO., PRINTERS.

1869.

TRANSACTIONS

OF THE

New York State Agricultural Society,

WITH AN

ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES.

VOLUME XXVIII—1868.

ALBANY:
THE ARGUS COMPANY, PRINTERS.
1869.

CONSTITUTION

OF THE

NEW YORK STATE AGRICULTURAL SOCIETY.

The style of this Society shall be "The New York State Agricultural Society." Its object shall be to improve the condition of Agriculture, Horticulture and the Household Arts.

SEC. 1. The Society shall consist of such citizens of the State as shall signify in writing, their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter one dollar, and also of Honorary and Corresponding members.

The Presidents of County Agricultural Societies, or a delegate from each, shall ex-officio be members of this Society.

The payment of ten dollars or more, shall constitute a member for life, and shall exempt the donor from annual contributions.

SEC. 2. The officers of the Society shall consist of a President, eight Vice-Presidents, one to be located in each judicial district, a Recording Secretary, a Corresponding Secretary, a Treasurer, an Executive Committee, to consist of the officers above named and eight additional members; and five of the ex-Presidents shall be ex-officio members of the Executive Committee, and these five shall consist of the five ex-Presidents whose term of office has last expired, of whom three shall constitute a quorum; and that the ex-Presidents of the Society, not members of the Executive Committee, shall constitute a Board of Councillors, to whom may be referred, for consultation and advice, all questions that may from time to time arise, and in the decision of which the Society may in any manner be interested; and a General Committee, the members of which shall be located in the several counties, and be equal to the representatives in the House of Assembly.

SEC. 3. The Recording Secretary shall keep the minutes of the Society. The Corresponding Secretary shall carry on the correspondence with other Societies, with individuals, and with the General Committee, in the furtherance of the objects of the Society.

The Treasurer shall keep the funds of the Society, and disburse them on the order of the President or a Vice-President, countersigned by the Recording Secretary, and shall make a report of the receipts and expenditures at the annual meeting in January.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c., which may be transmitted to the Society; and shall have also the charge of all communications designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange and publish the same in such manner and form as they shall deem best calculated to promote the objects of the Society.

The General Committee are charged with the interests of the Society in the counties in which they shall respectively reside, and will constitute a medium of communication between the Executive Committee and the remote members of the Society.

SEC. 4. There shall be an annual meeting of the Society on the second Wednesday of February, in the city of Albany, at which time all the officers shall be elected by a plurality of votes, and by ballot, with the exception of the General Committee for the counties, which may be appointed by the Executive Committee, who shall have power to fill any vacancies which may occur in the office of the Society during the year. Extra meetings may be convoked by the Executive Committee. Fifteen members shall be a quorum for the transaction of business. No person shall be qualified to vote at any election for officers of the Society, unless he shall have been a member of the Society for at least thirty days prior to such election.

SEC. 5. The Society shall hold an annual Cattle Show and Fair at such time and place as shall be designated by the Executive Committee.

SEC. 6. The Constitution may be amended by a vote of two-thirds of the members attending any annual meeting upon one year's previous notice in writing.

STATE AGRICULTURAL ROOMS,
April, 1869.

I certify the above to be a true copy of the Constitution of the New York State Agricultural Society.

T. L. HARISON, *Cor. Secretary.*

OFFICERS FOR 1869.

PRESIDENT,
SAMUEL CAMPBELL, Oneida.

VICE-PRESIDENTS.

1st district, SAMUEL THORNE, New York.
2d district, GEORGE H. BROWN, Dutchess.
3d district, JURIAN WINNE, Albany.
4th district, FRANK D. CURTIS, Saratoga.
5th district, SOLON D. HUNGERFORD, Jefferson.
6th district, WILLIAM M. ELY, Broome.
7th district, BENJAMIN F. ANGEL, Livingston.
8th district, RICHARD CHURCH, Allegany.

RECORDING SECRETARY,
BENJAMIN P. JOHNSON, Albany.

CORRESPONDING SECRETARY,
THOMAS L. HARISON, St. Lawrence.

TREASURER,
LUTHER H. TUCKER, Albany.

EXECUTIVE COMMITTEE,

A. B. CORNELL, Tompkins,
IRA E. SHERMAN, Delaware,
JAMES GEDDES, Onondaga,
MILO INGALSBE, Washington,
H. N. LOCKWOND, Cayuga,
JOHN D. WING, New York,
C. W. WADSWORTH, Livingston,
ROBERT J. SWAN, Seneca.

ENTOMOLOGIST,
ASA FITCH, M. D.

CHEMIST TO THE SOCIETY,
CHARLES H. PORTER, M. D.

MECHANICAL AND CONSULTING ENGINEER,
HENRY WATERMAN.

CONSULTING VETERINARIAN,
JAMES LAW, M. R. V. C.

EX-PRESIDENTS,

Year.	Name.	Location fair.	Year.	Name.	Location fair.
1841..	Joel B. Nott.....	Syracuse.	1855..	Samuel Cheever ...	Elmira.
1842..	James S. Wadsworth	Albany.	1856..	T. S. Faxton.....	Watertown.
1843..	James S. Wadsworth	Rochester.	1857..	Alonzo S. Upham..	Buffalo.
1844..	John P. Beekman...	Po'keepsie.	1858..	Wm. T. McCoun...	Syracuse.
1845..	Benj. P. Johnson ...	Utica.	1859..	Abraham B. Conger	Albany.
1846..	Jas. M. Sherwood...	Auburn.	1860..	B. N. Huntington..	Elmira.
1847..	George Vail	Saratoga.	1861..	George Geddes.....	Watertown.
1848..	Lewis F. Allen.....	Buffalo.	1862..	Ezra Cornell.....	Rochester.
1849..	John A. King.....	Syracuse.	1863..	Edward G. Faile...	Utica.
1850..	E. P. Prentice	Albany.	1864..	James O. Sheldon..	Rochester.
1851..	John Delafield.....	Rochester.	1865..	Theodore C. Peters.	Utica.
1852..	Henry Wager.....	Utica.	1866..	J. Stanton Gould...	Saratoga.
1853..	Lewis G. Morris	Saratoga.	1867..	Marsena R. Patrick.	Buffalo.
1854..	William Kelly.....	New York.	1868..	Thomas Hall Faile.	Rochester.

LIFE MEMBERS.

[Deceased members are marked with an asterisk.]

A.

Allen, William M., Harlem.
Allen, Lewis F., Black Rock.
Aspinwall, J. L., Barrytown.
Agnew, Alexander M., New York.
Allen, John, New York.*
Aycrigg, T. G., New Jersey.
Andrews, B. H., Waterbury, Conn.
Aspinwall, William H., New York.
Abernethy, Charles, New York.
Ames, D. T., Syracuse.
Arnold, William E., Otego.
Austin, J. Jr., Albany.
Adriance, J. P., Poughkeepsie.
Arnold, B. G., New York.
Agnew, Cornelius R., New York.
Angel, B. F., Geneseo.
Astor, Jno. Jacob, Jr., New York.
Avery, Ralph H., Canastota.
Arnot. S. T., Elmira.

B.

Beekman, John P., Kinderhook.*
Bell, Thomas, Eatontown, N. J.
Buell, William, Rochester.*
Brown, Lewis B., Westchester.
Boughton, Chauncey, Waterford.
Bowen, Henry C., Brooklyn.
Burkhalter, Charles, New York.*
Balcom, Uri, Oconto, Wisconsin.
Brown, William Smith, New York.
Boorman, James, Hyde Park.*
Brown, Lewis M., New York.
Bradley, George C., Watertown.
Boyce, William, New York.
Brown, William J., Fair Haven.
Byram, A. G., New York.
Baldwin, Harvey, Syracuse.*
Buck, A. H., Lowville.
Burr, William M. Jr., Cazenovia.
Bulkely, D. A., Williamstown, Mass.
Bailey, Isaac H., New York.
Becar, Noel J., New York.*
Babcock, Samuel D., New York.
Butler, B. C., Luzerne.
Babcock, F. M., New York,
Bowne, S. R., Flushing,
Bruen, Alexander M., Scarsdale.
Brooks, Daniel E., New York.
Butler, Charles, New York.
Bogart, M. D., Rockland Lake.
Barry, P., Rochester.
Bard, John, Barrytown.
Bradley, S. W., Olean.
Boardman, Truman, Trumansburgh.
Benham, A. B., Dryden.
Bailey, N. P., Fordham.
Bonesteel, Peter S., Victor.
Brown, George D., Lowville.
Brown, George H., Millbrook.
Baker, B. M., Rochester.
Beebe, William, New York.
Butterfield, J., Utica.*
Bliss, Jonathan.
Brown, John Crosby, New York.
Brown, James, New York.
Barber, A. D., New York.
Baldwin, A., Yonkers.
Brizee, Teunis, Pittsford.
Baker, A. Y., Hammondsport.
Birdsall, Benjamin, Mendon Center.
Barto, H. D., Trumansburgh.
Bowne, Robert, New York.
Beadle, E. L., M. D., Poughkeepsie.
Boyce, Ker, Flushing.
Brown, Alexander, North Bridgewater.
Bryden, Robert E., New Hartford.
Barnard, Charles, Utica.
Brown, J. P., Utica.
Bowen, H., Medina.
Butterfield, Charles E., Utica.
Blanchard, J. H., Utica.
Burch, H. M., ——.
Baker, B. F., Ballston.
Brown, D. D. S., Rochester.
Blake, W. C., Northfield, Vt.
Beckwith, B. M., Plattsburgh.
Bennett, Wm. H., Saratoga Springs.
Bostock, E., Albany.
Banks, John, Bainbridge.
Bartlett, H. B., Paris.
Baker, J. V., Comstock's Landing.
Butterfield, Daniel, New York.
Boswell, John, Chili.
Bell, John H., West Brighton.
Babbitt, B. T., New York.
Bicknell, J. Y., Westmoreland.

Brown, J, Emery, Churchville.
Brown, J. Tilden, M. D., Manhattanville.
Bogart, Wm. H., Aurora.
Bouck, Tobias, Cobleskill.
Bowne, Walter, Flushing.
Bristol, Wheeler H., Owego.
Buckley, Wade, Port Jervis.

C.

Campbell, William Bayard, New York.
Corning, Erastus, Albany.
Corning, Erastus Jr., Albany.
Clark, George, Springfield.
Coleman, Robert B., New York.*
Crocker, David Jr., New York.*
Clafflin, Horace B., Brooklyn.
Case Thomas R., Simsbury, Ct.
Corey, John A., Saratoga Springs.
Curtis, E. L. B., Danby.
Cromwell, William, New York.
Cook, E. G., Belleville.
Campbell, John, New York.
Conger, A. B., Waldberg.
Clarke, Alfred, Springfield.
Crane, John J., Morrisania.
Clarkson, Augustus, Potsdam.*
Chesebro, E., Guilderland.*
Catlin, D. W., New York.*
Chambers, James, Scarsdale.
Clement, Isaac, Mechanicsville.
Cocks, Isaac H., North Hempstead.
Cornell, Ezra, Ithaca.
Crittenden, Norman, Ithaca.
Cornell, Alonzo B., Ithaca.
Cornell, Franklin C., Ithaca.
Cornell, O. H. Perry, Ithaca.
Chrystie, Albert N., Havre, France.
Chauncey. Henry Jr., New York.
Chatfield, T. I., Owego.
Campbell, Samuel, New York Mills.
Carroll, Charles H., Geneseo.*
Cornell, Charles Ezra, Ithaca.
Cobb, Emory, Chicago.
Camp, Hugh N., New York.
Chipman, H. W., White Plains.
Childs, S. D., Utica.*
Churchill, A., Utica.*
Cogswell, W. L., New York.*
Champlin, C. D., Hammondsport.
Crossman, C. F., Rochester.*
Chatfield, A. F., Albany.
Copeman, A. S., Utica.
Cooke, Rolland C., Whitehall.
Collender, Hugh W., New York.
Coffin, Edmund, New York.
Cole, Walter, Batavia.
Coan, Luke, Westmoreland.
Clark, Leander, Newburgh.
Crofoot. James R., Constableville.
Clarke, Almonde, Whitestown.
Cary, H. N., Whitesboro.
Coulter, J. E., New York.
Cowden, Elliott C., New York.
Carpenter, Franklin, South Corinth.
Chamberlain, D. D., New York.
Church, Richard, Belvidere.
Cady, Charles, Dryden.
Crego, Russell, Albany.
Church, Elihu, Riga.
Cooper, Joseph M., New York.
Crossman, C. W., Rochester.
Campbell, James K., D. D., New York.
Cunard, Sir Edward, New York.*
Cunningham, James B., White Plains.
Callanan, Henry, Coeymans.
Cannon, Legrand B., New York.
Crozier, William, Northport, L. I.
Cossitt, Davis, Onondaga.
Champlain, Marshall B., Cuba, N. Y.
Conkling, John P., Saratoga Springs.

D.

Delavan, H. W., Ballston.*
Delafield, John, Oakland.*
Dickey, George, New York.*
Dinsmore, William B., Staatsburgh.
Demarest, Abram A., New York.
Defreest, John K., Defreestville.
Draper, Simeon, New York.*
De Witt, Edward, New York.
Dater, Philip, New York.*
Dillon, Robert B., New York.
De Forest, D. W. C., Defreestville.
Dill, John B., Auburn.
Dows, David, New York.
Devereaux, John C., Ellicotville.
Dollner, Harold, New York.
Doolittle, Charles H., Utica.
Dagwell, John, Utica.
Dorland, William L., Dean's Corners.
Dickey, Charles D., New York.
De Angelis, W. W., Holland Patent.
Dodge, Henry, Washington Mills.
Downer, Charles, Utica.
Dewey, C. D., Port Leyden.
Dodge, W. E., New York.
Dater, James, New York.
Doelker, George, Albany.
Dike, Henry A., New York.
Dwight, J. W., Dryden.
Davenport, Charles L., Syracuse.
Dike, James P., New York.
Denniston, William, New York.
Dodge, J. P. B., Esopus, Ulster Co.
De Freest, Martin D., Defreestville.
Davis, J. C. Bancroft, Newburgh.
Didama, John E., Medina.

E.

Edmonds, F. W., Bronxville.*
Emmett, Thomas Addis, Astoria.*
Earle, Morris, New York.*
Ellwanger, George, Rochester.
Edwards, Edward, South Corinth.
Erwin, Charles H., Painted Post.
Eddy, John W., ——.
Erwin, E. H., Painted Post.
Elliott, John, New York.
Everett, Wm. E., Rye.
Ellis, Edwin, Albany.
Ely, Wm. M., Binghamton.

F.

Fairbanks, T., St. Johnsbury, Vt.*
Fairbanks, E., St. Johnsbury, Vt.
Fairbanks, H., St. Johnsbury, Vt.
Fellows, Joseph, Bath.
Foster, H. Ten Eyck, Lakeland.*
Finlay, J. Beekman, Saratoga Springs.*
Faile, Edward G., New York.*
Faile, Thomas H., New York.
Faile, Edward, West Farms.
Faile, Charles V., New York.
Faile, Samuel, White Plains.
Fox, William W., New York.*
Furman, John M., New York.
Faxton, T. S., Utica.
Fox, George S., West Farms.*
Forbes, Paul S., Beaverwyck.
Frost, J. T., Clinton Point.
Ferris, Wm. L., Westchester.
Faile, Henry, New York.
Frame, William, Flushing.*
Faile, Thomas H. Jr., New York.
Fields, P. H., Geneva.
Fitch, Asa, East Greenwich.
Fuller, Dudley B., New York.*
Furgeson, Amos, Utica.
Farwell, Samuel, Utica.
Foster, James S., New Hartford.
French, L. L., Page's Corners.
Freer, S. D., Cortlandville.
Freeman, Isaac, Bemis Heights.
Filley, Samuel R., Woodstock.
Ford, Henry A., Westerlo.
Foster, Frederick G., New York.
Foster, Edmund B., West Stockbridge.
Ferris, John, Moresville, Del. Co.
Frothingham, Wm., M. D., Washington Heights.
Fitch, Mason P., Elmira.
Fellows, Benjamin, Chili.

G.

Geddes, George, Fairmount.
Gauly, William M., New York.*
Goldsmith, R. F., West Southold, L. I.
Glenn, W. W., Baltimore, Md.*
Granger, Oscar, Saratoga Springs.
Gallup, S. M., New York.
Greig, John, Canandaigua.*
Griffin, Elihu, Clinton Corners.*
Green, John C., New York.
Granger, Gideon, Canandaigua.
Gilman, Arthur, Lee, Mass.
Geddes James, Fairmount.
Green, A. H., New York.
Gunn, S. W., Kirkland.
Gilbert, E. M., Utica.
George, Thomas, Newburgh.
Gandy, Shephard, New York.
Galbraith, Thomas, Washington Hollow.
Gibbs, I. E., Watertown.
Greenman, Silas C., Utica.
Gregory, H. C., Unadilla.
Gibbs, R. B., Harpersfield.
Granger, Foster O., Saratoga Springs.
Grumman, Wm., Newark, N. J.
Gordon, Robert, New York.
Griswold, John A., Troy.
Gould, Thomas, Aurora.
Goodman, R., Lenox, Mass.
Grice, C. C., New York.
Greenway, John, Syracuse.
Gould, David G., Quaker Hill.
Graham, James H., Delhi.

H.

Huntington, Benjamin N., Rome.
Hartshorne, George, Rahway, N. J.
Haviland, I. E., Hempstead Branch.
Haight, Edward, Westchester.
Hunt, Wilson G., New York.
Hopkins, Lucius, New York.
Herrick, John H., New York.
Harold, John, Hempstead.
Holmes, A. B., New York.
Hastings, George F.. Shusan.
Hoadley, Luther, Harwinton, Conn.
Hayward, E. S., Rochester.
Hurst, William, Albany.
Hall, Peleg, New York.
Hoe, Richard M., New York.
Hurlbut, H. A., New York.
Hamilton, D., Watervliet.*
Herrick, E. H., New York.*
Haven, John, New York.
Herrick, Jacob B., New York.*
Howell, Benjamin H., New York.
Hoe, Peter S., New York.
Hilton, Joseph, New Scotland.
Hopkins, Henry, New York.
Houpt, Henry H., Dryden.
Hungerford, Solon D., Adams.
Huestis, Hugh, Adams.
Hovey, C. M., Boston.
Hayes, Clark I., Unadilla.
Harison, Thomas L., Morley.
Harison, Richard M., New York.
Harison, George D. L., New York.
Harison, Francis, New York.
Howland, Obadiah, Auburn.
Harberger, J. S., New York.
Hopkins, O., New York.
Heyne, Carl, Red Hook.
Huntington, E., Rome.
Hart, H. R., Utica.
Hawley, J. S., Binghamton.
Hallett, J. S., New York.
Hager, John G., Rhinebeck.
Houghton, W. J., ——.
Harder. M., Cobleskill.
Hoyt, D. C., ——.
Hendrick, James, Albany.
Harris, Joseph, Rochester.
Herring, Silas C., New York.
Hoyt, Alfred M., New York.
Hicks, B. D., North Hempstead.
Hatch, Lewis M., Ashville, N. C.
Hoge, William, Tarrytown.
Holmes, Wm. M., Greenwich.
Hess, Elmon, West Somerset.
Hubbell, Alrick, Utica.

Hunt, Ward, Utica.
Hopkins, W. R., Utica.
Howland, Joseph, Mattewan.
Heffron, D. S., Utica.
Holden, E. C., McGrawville.
Hodge, John, Lockport.
Hubbell, Eli S., Elmira.

I.

Isham, W. B., New York.*
Irvin, Richard, New York.
Ives, Julius Jr., New York.
Ives, Julius, New York.
Ingalsbe, H. H., South Hartford.
Ingalsbe, Milo, South Hartford.
Ingalsbe, James L., South Hartford.
Irwin, D. B., Middletown.

J.

Johnson, B. P., Albany.*
Jones, Edward, Rhinebeck.
Jackson, John C., New York.
Johnson, Samuel Wm., Ellicottville.
Johnston, James Boorman, New York.
Johnston, William S., Poughkeepsie.
Jay, John, Katonah.
Jones, O. W., New York.
Johnson, William, Geneva.*
Johnson, Bradish, New York.
Johnson, R. L., Albany.
Jervis, John B., Rome.
Jones, David R. Floyd, S. Oyster Bay.
Johnston, John T., New York.
Jones, Morris R., Rome.
Juliand, J. Jr., Bainbridge.
Judd, Orange, New York.
Jewell, A. L., Waltham, Mass.
Jaffray, Edward S., New York.
Johnson, Benj. W., Albany.

K.

Kelly, William, Rhinebeck.
King, John A., Jamaica.*
Keene, Stephen S., M. D., New York.
Kirtland, B. B., Greenbush.*
Kennedy, Robert L., New York.
Ketchum, Morris, New York.
Keese, Samuel T., New York.
Kidder, K. P., Burlington, Vt.
Kelley, Henry, New York.*
King, John A. Jr., Long Island.
Kelly, William Jr., New York.
Kellogg, P. V., Utica.
King, P. V., New York.
Kirk, George Wistar, New York.
Keays, Edward, Albany.
Kingsland, Thos. B., New York.

L.

Leray De Chaumont, James, Leraysville.*
Lenox, James, New York.
Livermore, Charles F., New York.
Lee, John R., Buffalo.
Ludlow, William H., Sayville.
Linklaen, Ledyard, Cazenovia.*
Lawrence, Edward A., Flushing.
Leggett, Edward W., Harlem.*
Lockwood, E., New York.*
Landon, William, Albany.*
Lee, William H., New York.
Leavitt, Henry S., New York.
Lockwood, George, New York.
Leland, Simeon, New York.
Lawrence, F. N., Flushing.
Leonard, Moses G., Rockland Lake.
Lexow, Rudolph, Nanuet.
Livingston, E. P., Clermont.*
Lawrence, L. H., Utica.
Lawyer, Luther, Perth River.
Lowber, R. W., New York.
Lay, F. W., Greece.
Leverich, C. P., New York.
Lambert, W. G. Jr., Chappaqua.
Lord, J. Cowper, New York.
Lee, David B., New York.
Lorrillard, L. L., West Farms.
Look, S. J., Clayville.
Lyman, David, Middlefield, Conn.
Lord, H. G., ——.
Leland, W. W., Saratoga Springs.
Leland, C. E., Saratoga Springs.
Loomis, H. B., New York.
Lawrence, De Witt C., New York.
Lewis, Harris, Frankfort.
Leverich, Charles D., Newtown.
Lee, Wm. H., Schenectady.
Lane, George W., New York.
Livingston, Robert J., New York.
Littlefield, R. M., Afton.
Lansing, Charles, Lansingburgh.

M.

McIntyre, J. McDonald, Albany.
Marvin, James M., Saratoga Springs.
Morris, Lewis G., Mt. Fordham.
McIntyre, Archibald, Albany.*
Maitland, William C., Fordham.
McGraw, Joseph Jr., Dryden.
Murray, George, New York.
Morris, Fordham, Mt. Fordham.
Morris, Francis, Mt. Fordham.
Munn, Samuel, Mott Haven.
Miller, James M., New York.
Miller, Daniel S., New York.
McGraw, John, West Farms.
Mortimer, John H., New York.
Marks, Enoch, Camillus.
Mather, F. E., New York.
Mordoff, M. C., Rochester.
Messenger, Thomas, Great Neck, L. I.
Masterton, Robert M., New York.
Maxwell, Hugh, New York.
McCredy, Dennis A., New York.
Moore, D. D. T., Rochester.
Maurau, S. E., White Lake.
Mitchell, O. M., Saratoga Springs.*
Masterton, Alexander, Bronxville.
Munroe, Allen, Syracuse.
Maxon, Thomas V., Adams.
McCall, James S., Geneva.
Morss, B. G., Red Falls.

Morrison, James M., New York.
Matteson, James M., Jacksonville.
Morgan, J. E., Deerfield.
Middleton, R., Utica.
Mason, D. C., N. Hartford.
Mecke, J. A., New York.
Maitland, R. L., New York.
Mason, J. W., Brooklyn.
Moller, W. T., Irvington.
Mesick, P., Albany.
Mathewson, Park, New York.
Messenger, W. S., Great Neck, L. I.
Minturn, Robert B., New York.
Matteson, O. B., Utica.
Millard, S. A., Clayville.
Mason, S. M., New Hartford.
Mann, J. F., Utica.
Melick, William B., Albany.
Matthewson, J. E., New Berlin Center.
Munson, E., Tyre.
Merriam, Charles M., Leyden.
Mowry, J. F., Deansville.
Moffat, John N., New York.
Miller, Seth, Constableville.
Merriam, C. L., Leyden.
Morrell, Robert, Manhassett.
Mitchell, Samuel L., New York.
Moon, C. B., Saratoga Springs.
Myers, John K.. Yonkers.
Myers, Marvin S., Charlton.
Musselman, Chauncey, Phelps.
Mount, Andrew, New York.
Mills, M. H., Rochester.
McNeil, R. C., Campville.

N.

Norton, Robert, New York.
Nourse, J., Boston.
Nellis, A. J., Bath.
Nusbaum, Israel, Albany.

O.

Odell, William T., Ballston.
Otis, H. G., Geneva.
Osgood, Jason C., Troy.
Olmstead, H. M., Morristown.
Osborn, Amos O., Waterville.
Ostrander, W. P., Schuylerville.
Owen, Jesse, Chemung.
Ogden, Gouverneur M., New York.

P.

Patrick, M. R., Manlius.
Prentice, Ezra P., Albany.
Plumb, Josiah B., Albany.
Phelps, Thomas W., New York.
Peet, Harvey P., New York.*
Pease, R. H., Albany.
Post, William, New York.*
Paton, Thomas, New York.
Phelps, Peter, Derby, Conn.
Phelps, Royal, New York.
Popham, William H., Scarsdale.
Pinkney, Thomas, Bronxville.
Pell, Robert L., Pelham Farm.
Punnett, James, New York.
Pye, Edward, Haverstraw.*
Pumpelly, Harman, Albany.
Peck, Edgar F., Brooklyn.
Peters, T. C., Darien.
Pierson, Henry L., New York.
Pyle, James, New York.
Pratt, Zadock, Prattsville.
Park, Joseph, New York.
Palmer, Allen B., Geneva.
Penfold, E., New York.
Park, H. S., New York.
Pine, G. W., Herkimer.
Priest, Z. C., Utica.
Priest, D. E., Utica.
Palmer, J. L., Adams Center.
Pine, Ai, Pittstown,
Pomroy, William H., New York.
Peugnet, Charles, Cape Vincent.
Palmer, N., Hudson.
Palmer, T. G., Hudson.
Page, J. R., Sennett.
Penfold E. Jr., New York.
Prentiss, J. H., Utica.
Palmer, A. W., Amenia.
Potter, Howard, New York.
Pearsall, N. B., Morris.
Purdy, Samuel M., West Farms.
Paton, William, New York.
Peet, Isaac Lewis, New York.
Pinckney, Stephen R., New York.

R.

Rust, Philo N., Syracuse.*
Rotch, Francis, Morris.
Robinson, Henry, Newburgh.
Richardson, Thomas, Westchester.
Reed, Almet, New York.
Rogers Henry W., Buffalo.
Rathbun, L. W., Springfield.
Rotch, Francis M., Morris.*
Randall, Nathan, Syracuse.
Robbins, George A., New York.
Rutherford, Thomas H., East Chester.
Read, J. Meredith, Albany.
Randall, Benjamin, Adams.
Read, William G., New York.
Robinson, Charles, Fishkill Plains.
Reynolds, M. F., Rochester.
Rockwell, S. D., New York.
Read, J. H., Utica.
Randall, H. S., LL. D., Cortland.
Rankin, W., Charlotte.
Richards, D. C., Fort Washington.
Rogers, D. E., Wheatland.
Rowe, J., Poughkeepsie.
Riggs, C. G., Turin.
Ramsdell, L., Greeneville.
Randall, N. W., Bristol Center.
Reeve, J. H., Wells Corners.
Ripley, Joseph, New York.
Rider, Zerah, Cambridge.
Root, Samuel, Westport.
Ronan, Patrick, Elmira.
Remington, M. C., Weedsport.

S.

Saxton, C. M., St. Louis.
Seward, William H., Auburn.
Seymour, Horatio, Utica.
Sherwood, John M., Auburn.
Stetson, Charles A., New York.
Spencer, Lorillard, Throg's Neck.
Spinner, John D., Herkimer.
Stevens, E. R., Saratoga Springs.
Sheafe, J. F., Dutchess.
Smith, N. Everett, New York.
Smith, D. D., New York.
Smith, M. M., Rochester.
Sherman, C. A., New York.
Sherman, B. L., New York.
Spaulding, Henry F., New York.
Swan, Robert J., Rose Hill.
Stuart, Robert L., New York.
Stuart, Alexander, New York.
Sloane, Samuel, New York.
Sheldon, James O., Geneva.
Suydam, Henry Jr., New York.*
Sands, A. B., New York.*
Smith, Silas G., Mechanicsville.
Swan, Benjamin S. Jr., New York.
Slingerland, William H., Norman's Kill.
Schenck, William J., New York.
Southworth, John, Dryden.
Seney, George J., New York.
Smith, Thomas, New York.
Spofford, Paul, New York.
Shark, Anthony, Defreestville.
Sheldon, Lucius M., Geneva.
Swain, James P., Bronxville.
Simpson, William, West Farms.
Strong, Benjamin W., Newtown.
Simpson, John V., West Farms.
Sherill, Eliakim, Geneva.*
Sandring, L. S., Deer River.
Saunders, Thomas P., Adams.
Simpson, William Jr., New Hudson.
Sherwood, Frederick, New York.
Smith, Albert, New Rochelle.
Sisson, G. M., Ledyard.
Sherrill, Lewis, Greenville.
Southworth, J. E., New York.*
Sheldon, H. K., New York.
Sampson, G. G., Brooklyn.
Sutherland, J. H., Pittsford.
Shonnard, E. F., Yonkers.
Sherman, S., Lundy's Lane.
Simpson, ——, White Plains,
Seaman, P., White Plains.
Sherman, Ira E., Sidney Plains.
Swan, William H., New York.
Stephenson, G. S., New York.
Southworth, ——, Utica.*
Savage, Thomas, N. Hartford.
Spriggs, J. I., Utica.
Spencer, J. E., Utica.
Sweezy, George W., New York.
Schuyler, Peter C., New York.
Seeley, D. W., Albany.
Sheldon, James, Geneva.
Swain, Thomas M., Bronxville.
Stillman, Charles, Woodstock.
Sturges, Jonathan, New York.
Schoonmaker, Henry, Cedar Hill.
Sherman, W. C. H., Newburgh.
Sharp, Jacob, Rome.
Safford, Halsey, East Otto.
Staley, Daniel G., Albany.
Sandford, Charles, New York.
Schreiner, O. H., New York.
Scott, John H., New York.
Stockwell, S. S., Rochester.
Stevens, S. W., Rochester.
Selkreg, John H., Ithaca.
Shultz, Walter J., New York.
Simpson, J. B. Jr., New York.
Smith, Solomon P., Waterford.

T.

Thompson, Samuel L., Setauket.
Tucker, Luther, Albany.
Thorne, Jonathan, Thornedale.
Thorne, Edwin, New York.
Thorne, Samuel, Thornedale.
Titus, James H., Malone.
Taber, Samuel T., Roslyn, L. I.
Thomas, Francis Jr., New York.
Thayer, Adin Jr., Hoosick Falls.
Thompson, James, Ballston Spa.
Tappan, John L., New York.
Toole, William S., New York.
Terry, Edmund, Utica.
Thorne, Stephen, Utica.*
Tripp, Lemon B., North Castle.
Thomas, Herman, Saratoga Springs.
Thomas, John, Frankfort.
Ten Broeck, W. S., Rhinebeck.
Tweed, Wm. W., New York.
Tucker, Luther H., Albany.
Toby, Silas W., Hudson.
Tobey, Arthur, Pittsford.
Taylor, John W.
Townsend, John, Albany.*
Thompson, Frederick, New York.
Tweddle, George, Albany.
Taylor, E. W., Elmira.
Titus, Charles M., Ithaca.

U.

Upham, A. S., Le Roy.
Underhill, Daniel, Jericho.
Underhill, Richard T., M. D., Croton Point Vineyard.

V.

Vail, George, Troy.
Van Rensselaer, Gen. Stephen, Albany.*
Van Rensselaer, Stephen Jr., Albany.*
Van Rensselaer, William P., Albany.
Van Pelt, Henry, New York.*
Van Rensselaer, R. H., Morris.
Van Antwerp, John, West Farms.
Van Alstyne, P. Edward, Kinderhook.
Van Wie, Peter, Cedar Hill.
Van Horn, G. H. F., Fonda.

W.

Wadsworth, James, Geneseo.*
Wadsworth, James S., Geneseo.*
Wadsworth, William W., Geneseo.*
Wells, Edward, Johnstown.
White, Hollis, Niagara Falls.
Ward, John, New York.*
Wells, Henry, Aurora.
Watson, William, West Farms.
Wainwright, C. S., Rhinebeck.
Wolfe, John David, New York.
Wykoff, S. S., New York.
Whitlock, Benjamin M., West Farms.*
Willetts, Robert, Bayside, L. I.
Wetmore, Prosper M., New York.
Wilkin, J. W., Orange County.
Weed, William H., New York.
Wilson, Catlin, Eutaw, Alabama.
Weston, Frederick, Sandy Hill.
Wendell, Herman, M. D., Albany.
Weed, W. W., Buffalo.*
White, William M., Canaseraga.
Woodworth, Augustus P., New York.
Whitney, Orla H., Mexico.
Walbridge, D. T., Rochester.
White, Hugh, Waterford.
Willard, G. L., Cold Spring.
Wight, R. A., New York.
Williams, J. B., Ithaca.
White, Rufus P., Adams.
Wood, Amos F., Woodville.
Ward F. B., Le Roy.
Wolfe, N. H., New York.
Warner, Horatio G., Rochester.
Wende, Herman, Alden.
Wende, B. A., Alden.
Wood, Orin S., Montreal.
Winne, Jurian, Bethlehem.
Williams, J. E., New York.
Wackerhagen, E., Albany.
Wetmore, Benjamin C., New York.
Wadsworth, Craig, W., Geneseo.
Williams, S. L., Perrinton.
Whitney, George J., Rochester.
Wilcox, A. T., Fayetteville.
Wheeler, G. H., Hammondsport.
Wilbur, R. P., Lowville.
Woodford, F. T., Utica.
Walrath, Solomon, Rensselaer Falls.
Willetts, Samuel, New York.
Walcott, W. D., New York Mills.
Wilson, Charles S., Utica.
Wood, E. D., Utica.
Wolcott, Dr. S. G., Utica.
Willard, X. A., Little Falls.
Watson, H. M., Albany.
Wier, Henry, Johnsonville.
Wing, John D., Dutchess.
Wade, Elias Jr., New York.
Watts, John, Ithaca.
Wood, W. Anson, Hoosick Falls.
Wells, Eugene, Rhinebeck.
Warner, Daniel D., Canaan.
Wendell, Charles, Albany.
Wier, H. C., Sugar Loaf.
Wadsworth, James W., Geneseo.
Wood, John E., Middletown.
Watson, W. H., Medina.
Warner, George H., New York Mills.
Welles, John C., Athens, Pennsylvania.
Willers, Diedrich, Jr., Varick.

Y.

Yelverton, Robert, New York.

Z.

Zborowski, Martin, Morrisania.

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STATE OF NEW YORK.

No. 89.

IN SENATE,

May 8, 1869.

TRANSACTIONS

OF THE

NEW YORK STATE AGRICULTURAL SOCIETY.

Agricultural Rooms,
Albany, *April* 20, 1869.

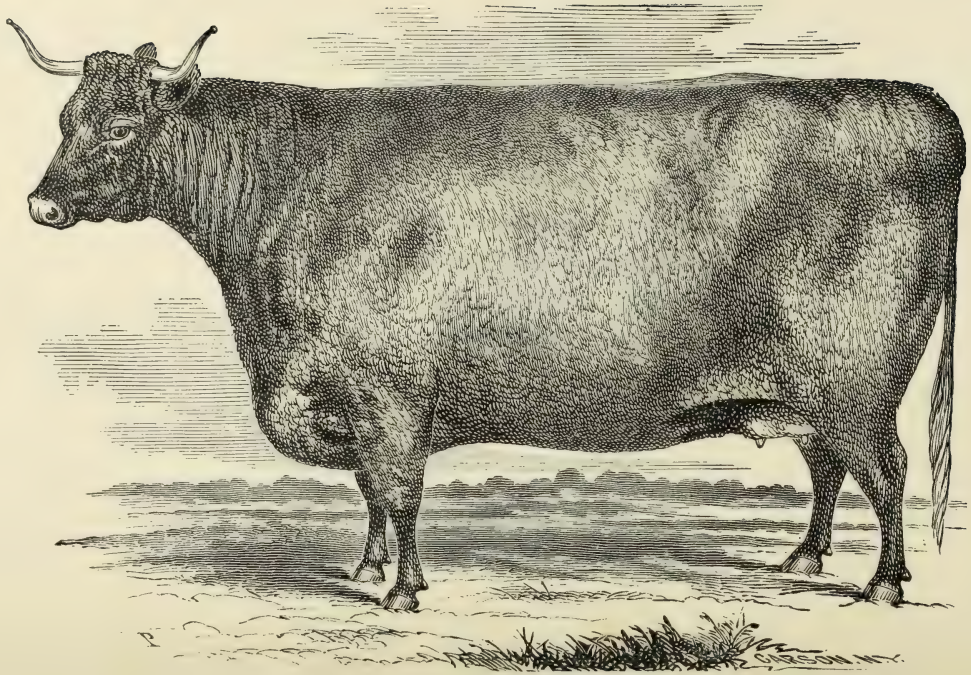
To the Hon. Allen C. Beach,
President of the Senate of the State of New York:

Sir.—I herewith transmit to the Legislature the Twenty-eighth Annual Report of the New York State Agricultural Society, and the abstracts and documents accompanying the same.

Very respectfully,

Your obedient servant,

T. L. HARISON,
Corresponding Secretary.



DEVON COW, "NEMOPHILA."

Bred by C. S. Wainwright, Rhinebeck. Property of Walter Cole, Batavia, N. Y. Winner of the first prize in the class of Devon Cows over three years old, at the State Fair at Rochester, 1868.

TRANSACTIONS

OF THE

New York State Agricultural Society.

REPORT OF THE EXECUTIVE COMMITTEE.

To the Legislature of the State of New York:

The Executive Committee of the New York State Agricultural Society, respectfully

REPORT:

That the past year has been one of general agricultural prosperity in the State of New York, the season having been a healthy one, and the returns of the harvest satisfactory.

The wheat crop upon some of the best wheat lands in Western New York was injured to a considerable extent during the winter of 1867–8, by the unusual severity of the weather in mid-winter and by the sudden changes and high winds in early spring. The latter part of spring and early summer did much, however, to recover it, and the result at harvest was more favorable as to the quantity and quality than was at one time expected, although the extreme heat had somewhat diminished the size and plumpness of the berry in some districts. The yield of spring-sown grain, except in the extreme northern part of the State, has been a fair average, and that of corn in all parts of the State has been remarkably good.

The farmers of the State have received remunerative prices for their crops of grain, and in the case of the barley crop, prices have gone so high as even to warrant importations of this grain from Europe, although the price in most foreign markets has been higher than usual, and very high in comparison with wheat. The wheat crop of the State has commanded a better price than was at first expected, though below the extreme rates of last season.

The dairy product of the State has been much diminished by the continued drought of the summer and autumn, but the prices of both butter and cheese have been fairly remunerative throughout the season; and at the close the foreign demand for American factory cheese brought up the price of the produce of the New York factories, whose reputation is now well established, to a higher figure than has ever before been reached.

The hay crop of the State is abundant, and, except in parts of the river counties, of excellent quality; a matter of great importance always, and especially so this year because not only the winter of 1868–9 began early, but the bareness of the pastures in the autumn made foddering necessary in many districts before winter set in.

The crop of potatoes, of which a large area was planted, has been generally good in yield and of fair quality and health, and this crop is yearly becoming a more important source of revenue. The increase of yield and exemption from disease are, in the opinion of many competent observers, in great part, due to the general introduction of the new varieties originated by the late Rev. C. E. Goodrich, of Utica; and this committee cordially acknowledges the wise and just recognition of the valuable labors of Mr. Goodrich by the Legislature in making an appropriation for the benefit of his children. It is no exaggeration to say that the farmers of the single county of Washington must have already profited by Mr. Goodrich's labors to an extent representing a capital sum, of which all the recompense ever received by Mr. Goodrich and his family would not equal one year's interest; and the benefits of the abundant, certain and cheap production of this invaluable esculent are not confined to the farmer, but extend to all classes of the community.

The hop districts of the State have met with a reverse in consequence, not of a failure of the crop, but of the sudden and unexpected diminution of its value, and the loss is such as to be almost a calamity. It appears to have arisen from causes chiefly beyond previous or future control, and not from excessive production either in this State or elsewhere. The culture of the hop has always been a business liable to sudden depressions, and, though the present misfortune is a very serious one, there is no reason to doubt that this special husbandry will continue a source of wealth.

The grazing interest in the State, though overshadowed by the cheap production of the great west, and restricted by the tendency to devote the farms adapted to grazing, to dairying exclusively, is yet

advancing. This is due partly to the fact that dairy farmers are now able to pay higher prices for stock than formerly, and also to the improvement in the quality of the neat cattle of the State. New York is acting a most important part in the improvement of live stock, not only within her own borders, but in the country at large. The enterprise of New York farmers has brought from the old world the finest cattle and the best sheep that can be procured abroad, and our stock farms are resorted to from every State in the Union for animals of the highest quality and purest lineage.

The Society has continued, during the past year, the investigation of the subject of abortion among dairy cows, which has been conducted by Dr. William H. Carmalt of New York, formerly, during the first year of the inquiry, assistant commissioner under Dr. John C. Dalton. The work done in 1867 being essentially preliminary, and having resulted in disproving and overthrowing most of the preconceived theories and conjectures as to the causes of the trouble; the investigations during the past year have been directed to thorough examinations of the affected districts, both as regards the dairy stock in health and when diseased, and the treatment of the cows by the dairy farmers, and as to the character of the vegetable produce of the land upon farms affected by and free from the malady. The information obtained will be found to be of great value and importance even if it shall prove that no certain results as to the causes and prevention of the mischief have yet been reached. The labors of the commission have been conducted with as great economy as was consistent with thoroughness, and the expenses have not exceeded the appropriation.

The report of the Utica plow trial prepared with great labor and research by the Hon. John Stanton Gould, Chairman of the Board of Judges, has been given to the public since the last report of the Society to the Legislature, and has been everywhere acknowledged to be a contribution to Agricultural Science of the highest merit and usefulness.

In order to make the plow trial as complete as possible, the Society was obliged to incur a larger expense than was at first contemplated, and the publication of the two reports (of the Auburn and Utica trials) proved costly; so that in addition to the amount of the State appropriation, which was somewhat increased by interest received on the government securities in which the money was invested while in the treasury of the Society; the Society has

expended of its own funds upon this account, as will appear by the Treasurer's report, a sum of between $450 and $500.

The publication of the first and second reports upon the rinderpest, made to the Society by the Hon. A. B. Conger, chairman of the committee upon that disease, and printed at the expense of the State, has also been completed since the last report. This work presents to the American people the fullest account of the nature and history of this dreaded plague that has been any where published; and, besides the pathology of the disease, offers a scheme of treatment both rational and ingenious. The deductions and conclusions of the author have been as yet unassailed, and it is to be hoped that their practical value may be tested in the countries where the disease originates. Copies of the work have been transmitted to all the foreign correspondents of the Society, and it has been a satisfaction to present them with a treatise which in any view must reflect credit upon the State.

The Entomologist of the Society has continued his useful labors during the year. The publication of the results of his observations, as usual, anticipates this report, and forms part of the volume of the Transactions of the Society published as for the year 1867. The published researches of Dr. Fitch, from their accuracy and completeness, have established for him a high reputation in the scientific world, and his writings are constantly referred to as authority and redound to the credit of his State. The reports of our State Entomologist made from year to year, characterized as they are, by truthfulness, modesty of expression, and patience, combined with acuteness, of observation, now collectively form a work of great and permanent value; and, as many of the small annual volumes are nearly out of print, it is suggested that provision should be made for their republication.

The State has, during the past year, been threatened with the outbreak of a serious cattle disease, to which the name of the "Texas Cattle Disease" has been assigned. The danger was not confined to our own, but has required measures of precaution by the governments of all the Middle and Western States. The Society congratulates itself upon having suggested and planned the formation and organization of the cattle plague commission, which, at the first appearance of danger was found ready and efficient. The precautions and active interposition of the commissioners have been attended with the most happy results. Their report and detailed statement of

their investigations have, at their request and with the acquiescence of the President of the Society, been appended to the volume of the Transactions of the Society for 1867, which was at the time going through the press, and, although the issue of that volume has been thereby greatly delayed, it is believed that the delay is fully justified by the importance of giving the information to the public as early as possible.

The Twenty-Eighth Annual Fair of the Society, held at Rochester, was a creditable exhibition of the products and resources of the State, with the exception of its cereals, of which it seems more and more difficult to secure a good display; and even the large premiums for wheat, offered by the liberality of Mr. Orange Judd, of the *American Agriculturist*, failed to call out a respectably large entry. The cause of this is uncertain, but it may perhaps be owing to the readiness with which our farmers convert their crops into cash, making it less worth their while to bring samples to the shows. Horses were exhibited in good number, and generally showing high excellence and most gratifying improvement. The show of cattle was small, but of high merit, Canadian and native breeders coming into competition in several classes to the advantage of the Canadians. In long-wooled sheep the honors were more equally divided than usual, though the foreign entries were mostly recent importations from the best flocks in England. The number of Jersey cattle was quite large, and the competition for the prizes very close. The entries of fine-wooled sheep were, as might have been expected, fewer than usual; the show of Silesian merinoes and their grades was, however, very fine, those bred in this country showing the good points of the breed and the size and quality to be well kept up, while the effect of the infusion of pure blood in the grades was very marked.

The other departments of the exhibition, dairy produce, poultry (a remarkably interesting show), fruit and flowers, were well sustained, but the great success of the fair was in the department of implements and machinery. To do justice to this exhibition would transcend the limits of this report, and reference must be made for this as well as for some other subjects not herein mentioned, to the detailed report of the fair prepared by Mr. Joseph Harris of Moreton Farm, Rochester, at the request of the Society.

The evening meetings on the Tuesday and Wednesday evenings of the fair were well attended, and the discussions were interesting and animated.

As usual, there is much delay in the forwarding of their reports by the county and other agricultural associations. So far as received they are very satisfactory, and indicate that the local societies are both prosperous and useful. In view of the increase of the appropriation for the promotion of agriculture, this year first available, the Executive Committee has appealed to the county societies to perform more generally the task of collecting the agricultural statistics of their respective counties as contemplated by the Act of 1862; and the answers received indicate that returns will be made this year from a larger number of counties than heretofore. In some of the larger counties it is practically impossible to comply with the requirements of the law, and it has become a question whether the attempt to collect these statistics annually ought to be continued. They are not of very great value when obtained from only a few counties in the State, and besides there is a complete census embracing, or which can be made to embrace, the same items of information taken every five years. If, however, an annual agricultural census of the State of New York is considered necessary, some system should be adopted which will secure it in completeness. This could perhaps be done by making it part of the duties of the town assessors, whose returns might be revised and tabulated by the town supervisors. The Executive Committee feel it to be their duty at any rate to call attention to the fact that the present plan occasions the State considerable expense in printing five thousand extra copies of the Transactions of this Society and of the American Institute, annually to satisfy the requirements of the law above referred to.

The enterprise of the stock breeders of the State has been shown in the continuation of the importations of thorough-bred stock during the year, principally Jersey cattle, a breed rapidly growing in favor, and of which there are comparatively few in the country, and Cotswold, Lincoln and Silesian sheep. It is very creditable to our people that this has not been checked entirely by the high premium upon gold and the heavy duty upon live stock; and considering the benefit to the country from these importations, it seems as if an effort ought to be made to change the tariff at least so far as to substitute specific for ad valorem duties, if not to abolish a tax which, after all, can form but a small item of the customs revenue, and is yet a serious bar to much needed improvement.

The Executive Committee congratulates the Legislature and the people of the State, upon the auspicious opening of the Cornell Uni-

versity. Beginning with all the requisites and advantages of ample endowment, extensive grounds, commodious buildings, a large and judiciously, as well as liberally, stored library, and a staff of professors chosen from among the best minds of the new and old worlds—the plan of instruction so commending itself to the public mind as to gather within the walls of the institution in its first year more than four hundred of our youth—there seems little room for doubt that the university will realize in its future the hopes of the State and the designs of its munificent founder.

ANNUAL MEETING, 1869.

The New York State Agricultural Society met in the Assembly Chamber at the Capitol, in the city of Albany, on Wednesday, February 10, 1869, at noon, the President, Thomas Hall Faile, of New York, in the chair.

The Corresponding Secretary being absent, the report of the Executive Committee was read by the Recording Secretary, and, on motion of the Hon. George Geddes, the same was accepted.

The Treasurer presented and read his report for the past year, as passed by the auditing committee, showing the receipts and payments since his last report.

And, on motion of the Hon. William Kelly, the same was accepted.

On motion of the same member, it was

Ordered, That a committee, to consist of three members from each judicial district, be appointed to nominate officers for the ensuing year, and to recommend a place for holding the next fair.

And the following gentlemen were constituted such committee, by the nomination of the members present from the several districts:

First District—A. P. Cumming, John Haven and Thomas H. Faile, Jr., of New York. Second—Lewis G. Morris, of Westchester, Isaac H. Cocks, of Queens, Wm. Kelly, of Dutchess. Third—M. Harder, of Schoharie, Joseph Hilton, of Albany, J. W. Collins, of Greene. Fourth—J. J. De Forest, of Schenectady, W. M. Holmes, of Washington, C. Boughton, of Saratoga. Fifth—James Geddes, of Onondaga, T. S. Faxton, of Oneida, S. D. Hungerford, of Jefferson. Sixth—J. H. Selkreg, of Tompkins, O. W. Chapman, of Broome, B. F. Bassett, of Delaware. Seventh—J. O. Sheldon, of Ontario, L. D. Mitchell, of Monroe, H. N. Lockwood, of Cayuga. Eighth—L. F. Allen, of Erie, S. Richardson, of Allegany, Richard Church, of Allegany.

And said committee having retired for deliberation, on returning reported, by their chairman, the Hon. William Kelly, the following list of officers for the ensuing year:

President—Samuel Campbell, of Oneida.

Vice-Presidents—First District, Samuel Thorne, of New York;

Second, George H. Brown, of Dutchess; Third, Jurian Winne, of Albany; Fourth, Frank D. Curtis, of Saratoga; Fifth, Solon D. Hungerford, of Jefferson; Sixth, William M. Ely, of Broome; Seventh, Benjamin F. Angel, of Livingston; Eighth, Richard Church, of Allegany.

Corresponding Secretary—T. L. Harison, of St. Lawrence.

Recording Secretary—B. P. Johnson, of Albany.

Treasurer—L. H. Tucker, of Albany.

Executive Committee—A. B. Cornell, of Tompkins; Ira E. Sherman, of Delaware; James Geddes, of Onondaga; Milo Ingalsbe, of Washington; H. N. Lockwood, of Cayuga; John D. Wing, of New York; Craig W. Wadsworth, of Livingston; Robert J. Swan, of Seneca.

And, by resolution, recommended the city of Elmira as the place of holding the next State Fair.

Whereupon, on motion, the list of officers reported by the committee was approved, and a ballot being had, they were duly elected; and, on motion, the recommendation of the committee as to the place of holding the fair was referred to the Executive Committee.

On motion of the Hon. Lewis F. Allen, it was unanimously

Resolved, That, in the judgment of this Society, the duty upon animals imported from foreign countries into the United States, for breeding purposes, ought to be abolished as being a bar to improvement, without benefiting the revenue.

Resolved, That copies of this resolution be transmitted to the President of the Senate and to the Speaker of the House of Representatives of the United States.

Mr. A. B. Cornell, of Tompkins, gave notice of an amendment to the Constitution, as follows:

To amend section 1, so that when amended it shall be as follows:

Section 1. The society shall consist of such citizens of the State as shall signify, in writing, their wish to become members, and shall pay on subscribing, and annually thereafter, such sum as may be from time to time established by the Executive Committee as the fee of annual membership; and also of honorary, corresponding, and life members. The presidents of county agricultural societies, or a delegate from each shall, *ex officio*, be members of this Society. The payment of such sum as shall be established from time to time by the Executive Committee as the fee of life membership shall constitute a member for life, and shall exempt him from annual contributions.

Whereupon the Society took a recess until half-past seven in the evening.

EVENING SESSION.

The Society met in the Assembly Chamber at half-past seven o'clock. His Excellency the Governor of the State of New York being present, on motion of Mr. A. B. Cornell, of Tompkins, it was unanimously

Resolved, That the Hon. John T. Hoffman is hereby constituted an honorary member of this Society, and invited to occupy a seat by the President's chair during the session.

Whereupon His Excellency the Governor, in a few words, cordially acknowledged the compliment.

The President introduced the Hon. Andrew D. White, President of the Cornell University, who addressed the Society on the true theory of education for scientific and industrial pursuits.

And on motion of the Hon. George Geddes, it was

Resolved, That the thanks of the Society are hereby tendered to the Hon. Andrew D. White, for his very able address, and that a copy be requested for publication.

The President then delivered his address, and at the conclusion thereof introduced his successor, the Hon. Samuel Campbell, of Oneida, who briefly addressed the Society and assumed the chair.

Whereupon, on motion of Ex-President Patrick, the thanks of the Society were voted to the retiring President for his excellent address, and a copy was requested for publication.

The Hon. John Stanton Gould made a short address on the subject of the Texas cattle disease, and the transportation of animals by railroad.

On motion of the Hon. William Kelly, the following preamble and resolutions were adopted:

Whereas, The law for the protection of sheep and cattle from the rinderpest and other contagious diseases, proposed by this Society and enacted by the Legislature in the year 1866, was drawn to meet an invasion of infectious disease from the seaboard; and,

Whereas, The disease which now threatens us may be expected through our western frontier, and a change in the provisions of the law is made necessary by this change of the point of invasion, therefore

Resolved, That the honorable the Legislature be requested to enact such amendments to the existing law as may be necessary to protect our domestic animals from the ravages of infectious diseases.

Resolved, That a copy of the foregoing preamble and resolution be signed by the President and Secretary, and respectfully presented to the Legislature.

After which, the President declared the Society would adjourn to the next morning at the Agricultural rooms, at 10½ o'clock.

Mr. Frank D. Curtis, of Saratoga, gave notice that it will be proposed at the next annual meeting to amend the constitution, so that the annual meeting shall thereafter be held on the second Wednesday of December, or such other time as may then be agreed upon, instead of on the second Wednesday of February.

MORNING SESSION.

February 11, 1869.

The Society reassembled in the lecture room, in the Agricultural Hall, on Thursday morning, February 11th.

Dr. Wm. H. Carmalt, commissioner in charge of the investigation of the subject of abortion in cows, read the report of the progress of the investigation during the year past, and, on motion, the thanks of the Society were voted therefor.

Mr. Jurian Winne, of Albany, read a paper upon the winter feeding of sheep, and on motion the thanks of the Society were voted therefor, and a copy requested for publication.

And, on motion, the Society adjourned.

PREMIUMS AWARDED AT THE WINTER MEETING

Of the New York State Agricultural Society, Thursday, February 11, 1869, *at the Agricultural Rooms, Albany, N. Y.*

Grain and Seeds.

(*One bushel of each variety being exhibited.*)

Best winter wheat, O. Howland, Auburn, Kentucky Soule's, 59 lbs	$3 00
2d best winter wheat, Ai Pine, Pittstown, 59 lbs	2 00
Best spring wheat, Ai Pine, 61 lbs	3 00
2d best spring wheat, O. Howland, 59 lbs	2 00
Best rye, H. Schoonmaker, Cedar Hill, White Michigan, 58½ lbs	3 00

2d best rye, A. E. Van Allen, De Friestville, 57 lbs..... $2 00
Best four-rowed barley, Henry Wier, Johnsonville, 45 lbs..... 3 00
Best two-rowed barley, O. Howland, Auburn, 50 lbs..... 3 00
2d best two-rowed barley, Randall King, Kendall's Corners, 48 lbs..... 2 00
Best winter barley, O. Howland, 53½ lbs..... 3 00
Best oats, W. G. Wayne, Seneca Falls, 38 lbs..... 3 00
2d best oats, Henry Wier, Johnsonville, 37 lbs..... 2 00
Best yellow corn, Ai Pine, Pittstown, 60 lbs..... 3 00
2d best yellow corn, O. Howland, Auburn, 59 lbs..... 2 00
Best peas, Henry Wier, 61 lbs..... 3 00
2d best peas, L. L. French, Richfield Springs, 61 lbs..... 2 00
Best white beans (large), Randall King, Kendall's Corners (marrows), 60 lbs.. 3 00
2d best white beans (large), J. J. De Forest, Duanesburgh (marrows), 61 lbs.. 2 00
Best white beans (small), O. Howland, Auburn, 62¾ lbs..... 3 00
2d best white beans (small), L. L. French, Richfield Springs, 62½ lbs..... 2 00
Best timothy seed, O. Howland, 46 lbs..... 3 00
Best flax seed, Henry Wier, 54 lbs..... 3 00
Best sugar cane seed, Henry Wier, 17 lbs., half bu..... 3 00
Best buckwheat, H. Schoonmaker, Cedar Hill, 47 lbs..... 3 00
2d best buckwheat, H. Wier, 44 lbs..... 2 00

Discretionary.

One-half bushel Goodrich potatoes, H. Schoonmaker, Cedar Hill..... 2 00
Sample of radishes, H. Schoonmaker..... 2 00

HENRY CALLANAN.
M. E. MYERS.

BUTTER.

Best 3 tubs of butter, M. E. Myers, Charlton..... $15 00
Best winter made butter, M. E. Myers..... 5 00
2d best winter made butter, Ai Pine, Pittstown..... 3 00
3d best winter made butter, J. W. Collins, Greeneville..... Trans.

CHEESE.

Best 3 cheeses, M. E. Myers, Charlton..... $15 00

CHEDDAR CHEESE.

A special premium recommended to F. W. Collins, of Rochester..... Dip.

H. H. INGALSBE.
LUMAN RAMSDELL.

WINTER FRUITS.

STATE AGRICULTURAL ROOMS,
ALBANY, *Feb.* 11, 1869.

The committee on fruit respectfully report, that they examined the different entries very carefully, and regret that there was not more competition in this department.

To Peter Van Wie, of Bethlehem, they award the first premium for the best twenty varieties of apples..... $4 00
To Peter Van Wie, Bethlehem, the first premium for the best fifteen varieties of apples..... 3 00

To Peter Van Wie, Bethlehem, for the best dish of apples, Northern Spy.. S. S. Med.
To O. Howland, of Auburn, the second best dish of apples, Swaars..... Trans.
To A. J. Heermance, Rhinebeck, the premium for the best seedling apple, known as the Heermance pippin $5 00

It is an apple of large size, good flavor, evidently an excellent cooking apple, and a long keeper. The committee are of opinion that this apple should be disseminated through the State, in order that its character may be more thoroughly tested.

LEWIS F. ALLEN.
M. R. PATRICK.
A. P. CUMMING.

Implements and Miscellaneous.

Your committee on implements beg leave to report that after looking over the different articles on the list, which was a somewhat laborious task, we, with pleasure, call attention to the numerous, valuable and practical implements, exhibited by Messrs. Strong & Douw, of Albany, consisting of:

American hay tedder.
Burt's wheel hay-rake.
Five Mohawk Valley clipper steel plows.
Harrington's seed sower.
Harrington hand cultivator.
Two improved Buckeye cider mills.
Hill's lawn mower.
Athol meat cutter.
Two-wheel velocipede.
Fire extinguisher.

Among the articles exhibited by them, we wish to call special attention to Harrington's seed sower, Hill's lawn mower, Athol meat cutter, and fire extinguisher, which are, in our judgment, worthy of attention.

There were two bee-hives on exhibition; one by Jasper Hazen, of Albany, and one by G. J. Flansburgh, of Bethlehem. We consider them both very good.

C. G. Riggs, of Turin, Lewis county, exhibited a milk cooler; in our judgment, a good article, and worthy of the attention of all dairymen.

A. E. Van Allen, of De Friestville, had on exhibition a flat iron, which is a fine invention.

J. Gibson, Jr., of Albany, has a fine arrangement for whips and whip holders; also an invention for heating street cars, which seems, to your committee, to be a thing long needed.

Messrs. Fords & Howe, Oneonta, exhibited their two-horse cultivator, which was awarded the gold medal at the Utica trial, 1867.

J. E. MORGAN.
J. W. SMITH.

REPORT OF TREASURER.

LUTHER H. TUCKER, *Treasurer, in account with* THE NEW YORK STATE AGRICULTURAL SOCIETY.

1868. DR.

Feb. 12.	To cash and U. S. securities on hand, per last account		$12,910 51
	" balance of abortion investigation appropriation of last year, drawn from State Treasurer		2,000 00
	" abortion investigation appropriation of 1868		5,000 00
	" appropriation for salary of Dr. Asa Fitch, Entomologist		1,187 50
	" annual memberships, reported by Secretary,		117 00
	" life memberships, reported by Secretary...		167 00
	" life memberships, reported by Thomas H. Faile, Esq.		150 00
	" Orange Judd, for special premiums for wheat		300 00
	" Thos. H. Faile, for special premium for stallion		200 00
	" John Haven and others, for special premiums for rabbits		32 00
	" receipts for entries at State Fair	$941 00	
	" receipts for admission tickets	19,799 77	
	" receipts for life members	39 00	
	" receipts for fines, &c.	96 00	
	Total	$20,875 77	
	Deduct exchange	17 30	
			20,858 47
	" local subscription at Rochester		1,200 00
	" refreshment rental of grounds, net		506 50
	" State appropriation for Society		1,706 25
	" interest account		1,000 62
	" miscellaneous		5 50
			$47,341 35

1869. CR.

Feb. 10.	By payments to date, per schedules annexed:	
	" premiums, &c., at winter meeting, A	$125 30
	" premiums and other liabilities of previous years, B	1,480 92
	" salary of Dr. Asa Fitch, Entomologist, C	1,187 50
	" salaries and traveling expenses, C	6,020 75
	Carried forward	$8,764 47

	Brought forward	$8,764 47
Feb. 10.	By library and museum expenses, D	330 65
	" incidental expenses, E	829 67
	" postage account, F	497 34
	" printing and stationery account, G	1,044 95
	" abortion investigation account, H	6,139 85
	" implement trial fund account, I	734 47
	" expenses of State Fair at Rochester, K	5,673 96
	" premiums and premium expenses, State Fair, L	5,648 03
	Total disbursements	$29,663 39
	United States bonds on hand	15,701 50
	cash in bank	1,976 46
	Total	$47,341 35

We, the undersigned, do hereby certify that we have examined the foregoing accounts and compared the same with the vouchers therewith presented, and find the same to be correct, and that all the payments have been fully vouched for. Also, that we have had exhibited to us the securities above mentioned, and the bank book showing the balance above stated.

JOHN HAVEN,
JAMES O. SHELDON,
Auditing Committee.

Thos. H. Faile, *President.*
T. L. Harison, *Recording Secretary.*
Dated Albany, *February* 10, 1869.

Schedule A.

1868. *Premiums, &c. at Annual Meeting.*

Feb. 14.	E. S. Hayward, premiums, per voucher 1	$20 00
	J. S. Holbert, premiums, per voucher 2	15 00
	A. W. Beach, premiums, per voucher 3	15 00
	Mrs. H. Weir, premiums, per voucher 4	10 00
	W. P. Ottley, premiums, per voucher 5	8 00
	A. E. Van Allen, premiums, per voucher 6	2 00
	A. E. Van Allen, premiums, per voucher 7	2 00
	B. Prime, services, per voucher 8	18 00
	W. H. Bogart, services, per schedule 9	15 00
	Hertz & Bro., use of chairs, per voucher 10	3 50
	Albany papers, bills of advertising, per voucher 11	13 80
	J. Munsell, printing, per voucher 12	3 00
	Total	$125 30

SCHEDULE B.

1868. *Premiums and other liabilities of previous years.*

Feb. 12.	D. M. Main, in full of Buffalo fair contract, voucher 1	$1,055 00
	S. R. Earls, Buffalo expenses, voucher 2	100 00
	J. S. Holbert, Buffalo premiums, voucher 3	25 00
	Miss E. G. Holbert, Buffalo premiums, voucher 4,	10 00
	G. & F. Tilford, Buffalo expenses, voucher 5	1 50
	Tucker & Crawford, Buffalo expenses, voucher 6,	7 50
	H. Rowland, Buffalo premium expenses, voucher 7	136 57
	E. W. Stewart, Buffalo expenses, voucher 8	25 00
	Geo. A. Moore, Buffalo expenses, voucher 9	11 30
	H. Rowland, Buffalo premium expenses, voucher 10	6 05
Nov. 25.	J. Corbin, Buffalo premiums, voucher 11	3 00
Dec. 4.	John D. Wing, Buffalo premiums, voucher 12	25 00
1869.		
Jan. 15.	J. T. Disney, Buffalo expenses, voucher 13	25 00
	Total	$1,430 92

SCHEDULE C.

1868. *Salaries and Traveling Expenses.*

April 7.	Dr. Asa Fitch, Entomologist, voucher 1	$312 50
July 6.	Dr. Asa Fitch, Entomologist, voucher 2	312 50
Oct. 16.	Dr. Asa Fitch, Entomologist, voucher 3	312 50
1869.		
Jan. 9.	Dr. Asa Fitch, Entomologist, voucher 4	250 00
	Total, Dr. Fitch	$1,187 50
1868.		
Feb. 27.	B. P. Johnson, salary Secretary and Clerk, voucher 5	$333 00
March 27.	B. P. Johnson, salary Secretary and Clerk, voucher 6	333 00
April 30.	B. P. Johnson, salary Secretary and Clerk, voucher 7	333 00
May 29.	B. P. Johnson, salary Secretary and Clerk, voucher 8	333 00
July 2.	B. P. Johnson, salary Secretary and Clerk, voucher 9	333 00
July 30.	B. P. Johnson, salary Secretary and Clerk, voucher 10	333 00
Aug. 29.	B. P. Johnson, salary Secretary and Clerk, voucher 11	333 00
	Carried forward	$2,331 00

		Brought forward		$2,331 00
1868.				
Sept.	24.	B. P. Johnson, salary Secretary and Clerk, voucher 12		250 00
		S. R. Earls, Clerk, voucher 13		83 00
Oct.	31.	B. P. Johnson, Secretary, voucher 14		250 00
		S. R. Earls, Clerk, voucher 15		83 33
Dec.	1.	B. P. Johnson, Secretary and Clerk, voucher 16.		333 00
Dec.	29.	B. P. Johnson, Secretary voucher 17		250 00
		S. R. Earls, Clerk, per voucher 18		83 33
		S. R. Earls, Clerk, per voucher 19		86 34
1869.				
Feb.	1.	B. P. Johnson, Secretary, voucher 20		250 00
				$4,000 00
1868.				
Dec.	1.	L. H. Tucker, salary Treasurer, voucher 21		400 00
June	5.	T. L. Harison, Recording Secretary, voucher 22	$99 68	
Aug.	22.	T. L. Harison, Recording Secretary, voucher 23	101 30	
Nov.	6.	T. L. Harison, Recording Secretary, voucher 24	35 05	
Dec.	3.	T. L. Harison, Recording Secretary, voucher 25	57 00	
Dec.	30.	T. L. Harison, Recording Secretary, voucher 26	50 00	
Feb.	4.	T. L. Harison, Recording Secretary, voucher 27	27 72	
"	10.	T. L. Harison, Recording Secretary, voucher 28	1,000 00	
"	10.	S. R. Earls, Clerk, voucher 29	250 00	
				1,620 75
		Total		$6,020 75

Schedule D.

1868. *Library and Museum Expenses.*

Feb.	13.	B. P. Johnson, Library account, voucher 1	$4 00
		Dr. F. B. Hough, Library catalogue, voucher 2	100 00
		X. A. Willard, Library, article for Transactions, voucher 3	25 00
May	14.	X. A. Willard, Library, article for Transactions, voucher 4	50 00
June	23.	M. C. Mordoff, Library, books, voucher 5	35 00
July	2.	C. Van Benthuysen & Sons, Library, binding, voucher 6	5 00
		D. G. Elliott, Library, book, voucher 7	10 60
		Carried forward	$229 60

		Brought forward	$229 60
1868.			
Sept.	4.	Churchill & Denison, Museum, photograph, voucher 8	13 00
		C. Van Benthuysen & Sons, books, voucher 9	2 25
		D. W. Quimby, books, voucher 10	4 00
		W. Gould & Son, books, voucher 11	3 00
		A. Ebbs & Co., books, voucher 12	12 00
		D. G. Elliott, books, voucher 13	10 00
		N. Lane & Co., books, voucher 14	5 00
Nov.	18.	Edw. Keays, sundries, voucher 15	2 80
1869.			
Jan.	15.	D. P. Gladding, repairs, voucher 16	13 25
		D. G. Elliott, book, voucher 17	10 00
Feb.	4.	H. G. Klinck, books, voucher 19	17 00
		C. Van Benthuysen & Sons, binding, voucher 20	8 75
			$330 65

SCHEDULE E.

1868. *Incidental or unusual expenses.*

Feb.	15.	Edward Keays, services, voucher 1	$24 00
Mc'h	27.	B. P. Johnson, express charges, voucher 2	10 01
		John L. Coon, services, voucher 3	48 00
		Robert Spence, services voucher 4	6 00
		National Express Co., freight, voucher 5	3 55
		Edward Keays, services, voucher 6,	24 00
		S. R. Earls, sundries, voucher 7	17 64
April	20.	Edward Keays, services, voucher 8	36 00
May	9.	Edward Keays, services, voucher 9	36 00
		Mrs. Miservay, services, voucher 10	6 00
		S. R. Earls, sundries, voucher 11	50 00
		R. P. Lathrop, sundries, voucher 12	6 78
May	30.	L. H. Tucker, check stamps, voucher 13	1 00
		E. Keays, services, voucher 14	36 00
June	20.	E. Keays, services, voucher 15	36 00
July	2.	American Express Co., freight, voucher 16	2 25
July	14.	E. Keays, services, voucher 17	36 00
Aug.	1.	E. Keays, services, voucher 18	36 00
Aug.	22.	E. Keays, services, voucher 19	36 00
Aug.	29.	B. P. Johnson, express charges, voucher 20	9 25
		S. R. Earls, sundries, voucher 21	24 62
		L. H. Tucker, check stamps, voucher 22	2 00
Sept.	26.	E. Keays, services, voucher 23	60 00
Oct.	24.	E. Keays, services, voucher 24	48 00
		B. P. Johnson, freight, voucher 25	50
Nov.	19.	S. R. Earls, telegrams, voucher 26	6 27
		S. R. Earls, sundries, voucher 27	30 60
Nov.	21.	E. Keays, services, voucher 28	48 00
		Carried forward	$680 47

	Brought forward	$680 47
1868.		
Dec. 3.	S. R. Earls, sundries, voucher 29	15 35
Dec. 19.	E. Keays, services, voucher 30	48 00
1869.		
Jan. 2.	S. R. Earls, sundries, voucher 31	17 30
	S. R. Earls, sundries, voucher 32	8 00
Jan. 16.	E. Keays, services, voucher 33	48 00
Feb. 1.	L. H. Tucker, receipt and check stamps, voucher 34,	4 00
	S. R. Earls, sundries, voucher 35	8 55
		$829 67

Schedule F.

1868. *Postages Account.*

Feb. 27.	B. P. Johnson, postages, voucher 1	$5 99
M'ch. 27.	B. P. Johnson, postages, voucher 2	5 00
April 30.	B. P. Johnson, postages, voucher 3	6 00
May 29.	B. P. Johnson, postages, voucher 4	17 00
June 13.	S. R. Earls, postages, voucher 5	45 00
June 17.	S. R. Earls, postages, voucher 6	30 00
July 1.	B. P. Johnson, postages, voucher 7	43 21
July 30.	B. P. Johnson, postages, voucher 8	26 00
	S. R. Earls, postages, voucher 9	10 00
Aug. 29.	E. Keays, postages, voucher 10	12 00
	B. P. Johnson, postages, voucher 11	10 50
Sept. 1.	S. R. Earls, postages, voucher 12	25 00
Sept. 14.	B. P. Johnson, postages, voucher 13	8 00
Oct. 29.	S. R. Earls, postages (on Rinderpest Reports), voucher 14	100 00
Nov. 17.	E. Keays, postages, voucher 15	3 00
Nov. 19.	S. R. Earls, postages, voucher 16	50 24
Dec. 3.	S. R. Earls, postages, voucher 17	28 40
Dec. 7.	S. R. Earls, postages, voucher 18	20 00
1869.		
Jan. 2.	S. R. Earls, postages, voucher 19	5 00
Jan. 16.	S. R. Earls, postages, voucher 20	26 00
Feb. 1.	S. R. Earls, postages, voucher 21	21 00
		$497 34

Schedule G.

1868. *Printing and Stationery Expenses.*

	Chas. Van Benthuysen & Sons, printing, &c., voucher 1	$211 92
June 11.	Pease & Prentice, stationery, voucher 2	61 48
	Carried forward	$273 40

	Brought forward	$273 40
1868.		
July 2.	C. Van Benthuysen & Sons, Cowdin's Address, voucher 3	99 15
	C. Van Benthuysen & Sons, General Patrick's Address, voucher 4	62 71
	C. Van Benthuysen & Sons, stationery, &c., voucher 5	34 75
July 15.	T. J. Cowell, stationery, &c., voucher 6	6 25
Oct. 1.	C. Van Benthuysen & Sons, printing, &c., voucher 7	228 83
	C. Van Benthuysen & Sons, printing, &c., voucher 8	280 62
	Pease & Prentice, stationery, voucher 9	59 24
		$1,044 95

SCHEDULE H.

1868. *Abortion Investigation Fund Account.*

Feb. 15.	Dr. W. H. Carnalt, services and expenses, voucher 1		$842 07
	Dr. Chas. Laight, services and expenses, voucher 2		50 00
	Dr. E. W. Schauffler, services and expenses, voucher 3		50 00
	Dr. D. W. Kissam, services and expenses, voucher 4		155 45
	Dr. R. F. Halsted, services and expenses, voucher 5		206 98
	Dr. R. F. Halsted, services and expenses, voucher 6		20 00
	Dr. P. E. Arcularius, services and expenses, voucher 7		51 08
	Dr. J. C. Dalton, expenses, voucher 8		60 02
July 2.	C. Van Benthuysen & Sons, printing, voucher 9		113 28
	John Stanton Gould, expenses, voucher 10		7 65
			$1,556 53
	On account of Appropriation of 1868:		
Aug. 15.	Dr. N. A. Lindley, services and expenses, voucher 11	$198 30	
	C. F. Austin, services and expenses, voucher 12	260 47	
	Dr. R. F. Halsted, services and expenses, voucher 13	287 00	
	N. Y. Printing Co., printing, voucher 14	42 50	
Aug. 31.	Dr. Halsted, services and expenses, voucher 15	269 22	
	Carried forward	$1,057 49	$1,556 53

	Brought forward	$1,057 49	$1,556 53
1868.			
Aug. 31.	Dr. Lindley, services and expenses, voucher 16	201 59	
Sept. 8.	Dr. Austin, services and expenses, voucher 17	212 45	
Sep. 24.	Dr. Kissam, services and expenses, voucher 18	198 09	
Sep. 26.	Dr. B. R. Swan, services and expenses, voucher 19	219 21	
Oct. 1.	Dr. Lindley, services and expenses, voucher 20	221 50	
	Dr. R. F. Halsted, services and expenses, voucher 21	279 19	
Nov. 1.	Dr. Kissam, services and expenses, voucher 22	192 24	
	Dr. R. F. Halsted, services and expenses, voucher 23	285 54	
	Dr. Austin, services and expenses, voucher 24	199 16	
Dec. 7.	Dr. Halsted, services and expenses, voucher 25	337 12	
Dec. 22.	C. H. Lawrence, services and expenses, voucher 26	70 00	
	Jas. Blood, expenses, voucher 27	14 28	
1869.			
Feb. 4.	Dr. W. H. Carmalt, services and expenses, voucher 28	1,089 96	
	N.Y.Printing Co., printing, voucher 29	5 50	
			4,583 32
			$6,139 85

Schedule I.

1868.	*Implement Trial Fund Account.*	
Feb. 15.	American Photo. Lith. Co., engraving, voucher 1,	$49 25
	F. F. Holbrook, engraving, voucher 2	32 00
	Gifford Bros., sundries, voucher 3	11 40
	J. Gifford, sundries, voucher 4	5 00
	Seymour, Morgan & Allen, premium, voucher 5,	*
May 22.	John Stanton Gould, expenses, voucher 6	88 05
	John Stanton Gould, expenses, voucher 7	34 55
	John Stanton Gould, expenses, voucher 8	100 00
	U. S. Patent Office, expenses, voucher 9	2 50
	S. R. Earls, postage on reports, voucher 10	32 00
Dec. 31.	C. Van Benthuysen & Sons, printing and binding, voucher 11	379 72
		$734 47

*Paid in books.

SCHEDULE K.

1868. *Expenses of State Fair at Rochester.*

Oct.	2.	Col. H. Bowen, general superintendent, voucher 1	$120 00
		D. McCormick, horse for superintendent, voucher 2	15 00
		Geo. A. Burr, assistant to superintendent, voucher 3	30 00
		Jas. S. McDonald, superintendent of cattle, voucher 4	66 00
		E. Barnes, assistant superintendent of cattle, voucher 5	15 00
		R. G. Wands, assistant superintendent of cattle, voucher 6	40 00
		J. F. Quick, superintendent of horses, voucher 7	63 00
		Frank Bowen, assistant superintendent of horses, voucher 8	30 00
		E. A. Bowen, assistant superintendent of horses, voucher 9	34 00
		T. V. Maxon, superintendent of sheep and swine, voucher 10	56 00
		J. C. Kellogg, assistant superintendent of sheep and swine, voucher 11	30 00
		E. P. Cheever, superintendent of poultry, voucher 12	32 00
		Jas. Geddes, implement department, &c., voucher 13	150 00
		J. W. Smith, superintendent of machinery, voucher 14	60 00
		H. B. Bartlett, superintendent of stoves, voucher 15	33 00
		H. H. Ingalsbe, superintendent of dairy hall, voucher 16	30 00
		H. H. Ingalsbe, expenses, voucher 17	5 73
		C. M. Tyler, superintendent of domestic hall, voucher 18	30 00
		Geo. W. Polley, assistant superintendent of domestic hall, voucher 19	20 00
		A. H. Green, assistant superintendent of domestic hall, voucher 20	36 00
		C. M. Tyler, for attendants, domestic hall, voucher 21	16 00
		Jas. Vick, superintendent of floral hall, voucher 22	100 00
		Martin Roberts, superintendent of forage, voucher 23	24 00
		M. C. Remington, assistant superintendent of forage, voucher 24	30 00
		Carried forward	$1,065 73

Brought forward			$1,065 73
1868.			
Oct. 2. W. H. Bogart, superintendent of press, voucher 25			30 00
			$1,095 73
G. B. R. Whipple, services as gatekeeper, voucher 26	$46 00		
H. Segur, services as gatekeeper, voucher 27	46 00		
G. W. Grant, services as gatekeeper, voucher 28	34 00		
D. McCormick, services as gatekeper, voucher 29	28 00		
E. W. Green, services as gatekeeper, voucher 30	27 00		
E. Marshall, services as gatekeeper, voucher 31	27 00		
E. B. Van Cott, services as gatekeeper, voucher 32	23 00		
John L. Marshall, services as gatekeeper, voucher 33	23 00		
D. D. Tompkins, services as gatekeeper, voucher 34	22 00		
W. G. Brainard, services as gatekeeper, voucher 35	20 00		
W. H. Coon, services as gatekeeper, voucher 36	20 00		
			316 00
John Coyle, services, &c., as detective, voucher 37	$54 50		
Jas. Irving, services, &c., as detective, voucher 38	54 50		
Robt. Watts, services, &c., as detective, voucher 39	37 80		
Jacob Emerick, services, &c., as detective, voucher 40	37 80		
John S. Stott, services, &c., as detective, voucher 41	20 00		
M. L. Taylor, justice of the peace, voucher 42	20 00		
Luther Eaton, assistant justice of the peace, voucher 43	20 00		
Nelson McCormick, policeman, &c., voucher 44	37 00		
Nathaniel Goodwin, policeman, &c., voucher 45	35 00		
D. Goodwin, policem'n, &c., voucher 46	35 00		
Carried forward	$351 60		$1,411 73

	Brought forward	$351 60	$1,411 73
1868.			
Oct. 2.	W. McGowan, policeman, &c., voucher 47	32 00	
	Jas. E. Booth, policeman, &c., voucher 48	30 00	
	A. Soper, policeman, &c., voucher 49	25 00	
	B. F. Cleveland, policeman, &c., voucher 50	24 00	
	E. A. Newberry, policeman, &c., voucher 51	24 00	
	E. W. Stoddard, policeman, &c., voucher 52	24 00	
	J. J. Brownell, policeman, &c., voucher 53	23 00	
	H. McGregor, policeman, &c., voucher 54	23 00	
	J. Tompkins, policeman, &c., voucher 55	22 00	
	W. H. Soper, policeman, &c., voucher 56	21 00	
	W. C. Bartlett, policeman, &c., voucher 57	19 00	
	J. B. Lowieson, policeman, &c., voucher 58	18 00	
	A. B. Hay, policeman, &c., voucher 59	17 00	
	F. E. Chadwick, policeman, &c., voucher 60	16 00	
	R. N. Booth, policeman, &c., voucher 61	15 00	
	Jasper Hubackuk, policeman, &c., voucher 62	14 00	
	F. Gilman, policeman, &c., voucher 63	14 00	
	W. McKilvey, policeman, &c., voucher 64	13 00	
	C. M. Bowen, policeman. &c., voucher 65	13 00	
	Thomas Smith, policeman, &c., voucher 66	13 00	
	H. Geston, policeman, &c., voucher 67	12 00	
	J. Reynolds, policeman, &c., voucher 68	12 00	
	A. F. Hiltonsmith, policeman, &c., voucher 69	9 00	
	Carried forward	$784 60	$1,411 73

	Brought forward	$784 60	$1,411 73
1868.			
Oct. 2.	J. H. Davis, policeman, &c., voucher 70	8 00	
	H. Girsh, policeman, &c., voucher 71	8 00	
	W. C. Bartlett, policeman, &c., voucher 72	2 00	
			802 60
	J. C. Cuyler, secretary's office, voucher 73	$100 00	
	G. W. Bliss, Jr., secretary's office, voucher 74	88 00	
	Cyrus Hayden, secretary's office, voucher 75	72 00	
	J. K. Seaver, secretary's office voucher 76	72 00	
	S. A. Bunce, secretary's office, voucher 77	64 00	
	C. F. Williston, secretary's office, voucher 78	64 00	
	John L. Coon, secretary's office, voucher 79	42 00	
	W. H. Fitch, secretary's office, voucher 80	30 00	
	S. W. Updyke, secretary's office, voucher 81	20 00	
	Thomas Goodwin, Secretary's office, voucher 82	12 00	
			564 00
	John H. Farrell, ticket office, voucher 83	$30 00	
	T. W. Cantwell, ticket office, voucher 84	30 00	
	W. G. Tucker, ticket office, voucher 85	30 00	
	Chas. Gould, ticket office, voucher 86	25 00	
	J. F. Vandercook, ticket office, voucher 87	25 00	
	J. A. Stimson, ticket office, voucher 88	20 00	
	C. H. Green, ticket office, voucher 89	20 00	
	J. Wilkinson, ticket office, voucher 90	20 00	
	W. W. Harris, ticket office, voucher 91	20 00	
	M. E. Wolverton, ticket office, voucher 92	20 00	
	Carried forward	$240 00	$2,778 33

	Brought forward	$240 00	$2,778 33
1868.			
Oct. 2.	J. R. Harcourt, ticket office, voucher 93	20 00	
	W. G. Ertzberger, ticket office, voucher 94	20 00	
	B. Brumaghim, ticket office, voucher 95	20 00	
	E. A. Griffin, ticket office, voucher 96	20 00	
	H. G. Otis, ticket office, voucher 97	15 00	
	W. G. Andrews, ticket office, voucher 98	15 00	
	C. W. Karnes, ticket office, voucher 99	15 00	
			365 00
	Bromley & Co., board of treasurer and clerks, voucher 100	$230 99	
	Bromley & Co., board of secretary, superintendent, &c., voucher 101	143 83	
	Bromley & Co., Society's room, voucher 102	45 00	
	Bromley & Co., board of H. Waterman, voucher 103	18 50	
			438 32
	Ellwanger & Barry, right of way, voucher 104	$100 00	
	H. C. Boughton, right of way, voucher 105	50 00	
	Baker & Skuse, right of way, voucher 106	50 00	
			200 00
	Hiram Wood, carriage hire, voucher 107	$55 00	
	M. Heavey, carriage hire, voucher 108	40 00	
	L. D. Mitchell, carriage hire, voucher 109	2 00	
			97 00
	C. M. Tyler, services and expenses, voucher 110	$188 88	
	T. L. Harison, expenses, voucher 111	98 56	
	L. H. Tucker, expenses, voucher 112	19 20	
	L. H. Tucker, expenses, voucher 113	23 80	
			330 44
	C. Van Benthuysen & Sons, printing, voucher 115	$915 95	
	Curtis, Morey & Co., printing and advertising, voucher 116	20 30	
	Carried forward	$936 25	$4,209 09

	Brought forward	$936 25	$4,209 09
1869.			
Oct. 2.	D. D. T. Brown, printing and advertising, voucher 117	15 80	
	Geo. B. Harris, printing and advertising, voucher 118	8 00	
	Tracy & Rew, printing and advertising, voucher 119	70 10	
			1,030 15
	Jas. Field, tent and signs, voucher 120.	$30 10	
	Jas. Field, tent and signs, voucher 121.	8 00	
	F. Van Dorn, tent and signs, voucher 122	7 00	
	J. Nusbaum, posting bills, voucher 123	10 00	
	N. Goodwin, posting bills, voucher 124	32 60	
	H. W. D. Brewster, cartage, voucher 125	2 50	
	E. Darrow, stationery, voucher 126.	4 87	
	F. W. Lay, oats for horses, voucher 127	8 50	
	Davis, Dewey & Co., coal, voucher 128	4 50	
	M. C. Mordoff, sawdust, voucher 129	5 00	
	Edw. Keays, postages, voucher 130.	14 03	
	American Express Company, transportation, voucher 131	24 10	
	American Express Company, transportation, voucher 132	75	
	A. B. Hay, posting bills, voucher 133.	12 00	
	I. Nusbaum, business office, voucher 134	25 00	
	John L. Coon, business office, voucher 135	6 00	
	S. R. Earls, sundry expenses, voucher 136	46 35	
	S. R. Earls, sundry expenses, voucher 137	15 45	
	S. R. Earls, traveling expenses, voucher 138	18 80	
	S. R. Earls, express charges, &c., voucher 139	34 17	
	Joseph Harris, report of Fair, voucher 140	100 00	
	D. P. Gladding, painting signs, voucher 141	25 00	
			434 72
			$5,673 96

SCHEDULE L.

1868. *Premiums and Premium Expenses.*

Oct. 2,	B. L. Swan, Jr., Judge class one, voucher 1...	$21 80
	G. W. Root, Judge class one, voucher 2.....	6 90
	L. G. Morris, Judge class one, voucher 3.....	22 80
	B. H. Andrews, Judge class one, voucher 4....	24 60
	O. Dillingham, Judge class one, voucher 5.....	23 50
	Thos. Bell, Judge class one, voucher 6	22 60
	Benjamin Long, Judge class one, voucher 7....	20 50
	J. A. Quackenbush, Judge class one, voucher 8.	5 00
	C. W. Bathgate, Judge class two, voucher 9...	20 80
	A. B. Raymond, Judge class two, voucher 10..	20 80
	P. H. Peterson, Judge class three, voucher 11..	7 56
	O. F. Marshall, Judge class three, voucher 12..	7 95
	S. S. Whitman, Judge class three, voucher 13..	11 52
	J. McGraw, Judge class three, voucher 14.....	5 00
	L. S. Fulton, Judge class three, voucher 15....	5 00
	H. Waterman, Judge class four, voucher 16...	29 60
	Dyer Williams, Judge class four, voucher 17...	18 40
	A. A. Sweet, Judge class four, voucher 18.....	18 40
	S. W. Baldwin, Judge class four, voucher 19...	30 80
	Jacob Ellison, Judge class five, voucher 20....	13 08
	O. Dillingham, Judge class five, voucher 21....	5 00
	O. K. Rice, Judge class five, voucher 22	28 70
	C. B. Way, Judge class five, voucher 23	16 40
	J. E. Ely, Judge class five, voucher 24.....	13 30
	S. F. Cary, Judge class five, voucher 25.....	13 30
	M. B. Bateham, Judge class six, voucher 26...	5 00
	John Charlton, Judge class six, voucher 27....	5 00
	N. Hallock, Judge class six, voucher 28.....	21 80
	J. A. Eastman, Judge class six, voucher 29....	5 00
		$450 11
	Wolcott & Campbell, premiums, classes 1 and 3, voucher 30.....	253 00
	M. H. Cochrane, premiums, classes 1 and 3, voucher 31.....	238 00
	Walter Cole, class one, voucher 32	105 00
	W. B. Dinsmore, class one, voucher 33.....	95 00
	Joseph Hilton, class one, voucher 34.....	65 00
	Ezra Cornell, class one, voucher 35.....	60 00
	A. Lynch, class one, voucher 36.....	39 00
	C. K. Ward, class one, voucher 37.....	30 00
	John H. Bell, class one, voucher 38	30 00
	C. W. Wilcox, class one, voucher 39.....	25 00
	C. C. Holton, class one, voucher 40.....	25 00
	J. E. Brown, class one, voucher 41	20 00
Carried forward.....		$1,435 11

	Brought forward	$1,435 11
1868.		
Oct. 2.	W. Jackson, class one, voucher 42	20 00
	C. W. Wadsworth, class one, voucher 43	15 00
	B. Diver, class one, voucher 44	15 00
	Jos. Kurtz, class one, voucher 45	15 00
	O. P. Bingham, class one, voucher 46	10 00
	C. Diver, class one, voucher 47	10 00
	N. Davis, class one, voucher 48	10 00
	John Robertson, class one, voucher 49	10 00
	Rufus P. White, class two, voucher 50	200 00
	Robt. Bell, class two, voucher 51	52 00
	L. G. Morris, class two, voucher 52	50 00
	T. F. Ellis, class two, voucher 53	50 00
	D. B. Haight, class two, voucher 54	30 00
	Jas. Kilham, class two, voucher 55	20 00
	R. Rowley, class two, voucher 56	20 00
	E. W. Taylor, class two, voucher 57	20 00
	Jas. Reid, class two, voucher 58	18 00
	L. S. Fulton, class two, voucher 59	15 00
	H. Spraker, class two, voucher 60	15 00
	J. L. Wells, class two, voucher 61	15 00
	W. R. Ballantyne, class two, voucher 62	15 00
	G. T. Wheeler, class two, voucher 63	15 00
	Geo. Hamill, premiums, class two, voucher 64	15 00
	J. H. Coleman, premiums, class two, voucher 65	15 00
	J. G. Whitney, premiums, class two, voucher 66	15 00
	E. D. Vaughan, premiums, class two, voucher 67	15 00
	G. A. Hosington, premiums, class two, voucher 68	10 00
	D. W. Treat, premiums, class two, voucher 69	10 00
	P. Rowney, premiums, class two, voucher 70	10 00
	E. W. Thomas, premiums, class two, voucher 71	10 00
	A. H. Van Ness, premiums, class two, voucher 72	10 00
	Dodge & Stevenson, premiums, class two, voucher 73	10 00
	C. Johnson, premiums, class two, voucher 74	8 00
	G. D. Williams & Bro., premiums, class two, voucher 75	8 00
	L. S. Goodrich, premiums, class two, voucher 76	5 00
	G. Denise, premiums, class two, voucher 77	5 00
	D. P. Newell, premiums, class two, voucher 78	5 00
	H. A. Ellis, premiums, class two, voucher 79	4 00
	John H. Carpenter, premiums, class two, voucher 80	4 00
	F. & M. Leyden, premiums, class two, voucher 81	4 00
	N. Barns, premiums, class three, voucher 82	107 00
	W. Chamberlain, premiums, class three, voucher 83	103 00
	G. H. Warner, premiums, class three, voucher 84	48 00
	Carried forward	$2,496 11

		Brought forward	$2,496 11
1868.			
Oct.	2.	Thos. Gould, premiums, class three, voucher 85.	43 00
		Clark & McLean, premiums, class three, voucher 86	36 00
		Bronson & Mariner, premiums, class three, voucher 87	33 00
		S. P. Huffstater, premiums, class three, voucher 88	31 00
		E. A. Wendell, premiums, class three, voucher 89.	27 00
		Joseph Harris, premiums, class three, voucher 90.	18 00
		C. Parsons, premiums, class three, voucher 91	15 00
		Jurian Winne, premiums, class three, voucher 92.	12 00
		L. J. Wright & Co., premiums, class three, voucher 93	10 00
		Carl Heyne, premiums, class three, voucher 94.	10 00
		J. Y. Bicknell, premiums, class three, voucher 95	9 00
		T. T. Cavanaugh, premiums, class three, voucher 96	9 00
		S. B. Lusk, premiums, class three, voucher 97	8 00
		W. H. Cobb, premiums, class three, voucher 98	8 00
		J. Brodie & Son, premiums, class three, voucher 99	8 00
		John Salisbury, Jr., premiums, class three, voucher 100	5 00
		T. Herrick, premiums, class three, voucher 101.	5 00
		C. W. Yahey, premiums, class three, voucher 102.	5 00
		Pierce & Fellows, premiums, class three, voucher 103	3 00
		Knox & Williams, premiums, class four, voucher 104	20 00
		A. B. Smith, premiums, class four, voucher 105.	20 00
		J. E. Morgan, premiums, class four, voucher 106.	10 00
		N. Hough, premiums, class four, voucher 107	10 00
		S. F. Parker, premiums, class four, voucher 108.	10 00
		H. P. Westcott, premiums, class four, voucher 109.	5 00
		A. F. Jennings, premiums, class four, voucher 110.	3 00
		O. Howland, premiums, class five, voucher 111.	200 00
		Randall King, premiums, class five, voucher 112.	100 00
		O. Howland, premiums, class five, voucher 113.	56 00
		M. E. Myers, premiums, class five, voucher 114.	45 00
		Isaac Bower, premiums, class five, voucher 115.	42 00
		Horatio Graves, premiums, class five, voucher 116.	40 00
		G. Bohringer, premiums, class five, voucher 117.	29 00
		Geo. Cooper, premiums, class five, voucher 118.	24 00
		E. S. Hayward, premiums, class five, voucher 119.	22 00
		J. S. Holbert, premiums, class five, voucher 120.	20 00
		F. W. Collins, premiums, class five, voucher 121.	20 00
		Carried forward	$3,467 11

		Brought forward	$3,467 11
1868.			
Oct.	2.	Randall King, premiums, class five, voucher 122.	20 00
		P. Miller, Jr., premiums, class five, voucher 123.	18 00
		S. A. Dewey, premiums, class five, voucher 124.	15 00
		F. W. Collins, premiums, class five, voucher 125.	15 00
		E. Frazier, premiums, class five, voucher 126...	15 00
		A. B. Benham, premiums, class five, voucher 127.	15 00
		Mrs. Emma Brooks, premiums, class five, voucher 128.....	13 00
		Robt. Lothridge, premiums, class five, voucher 129	10 00
		H. Schoonmaker, premiums, class five, voucher 130.....	10 00
		Jas. P. Edmunds, premiums, class five, voucher 131	10 00
		Robt. Bell, premiums, class five, voucher 132..	10 00
		Robt. Lothridge, premiums, class five, voucher 133	10 00
		J. Pierson, premiums, class five, voucher 134...	10 00
		Robt. Embury, premiums, class five, voucher 135.	10 00
		M. C. Wetmore, premiums, class five, voucher 136.	10 00
		S. W. Cox, premiums, class five, voucher 137..	10 00
		Abel Dwyer, premiums, class five, voucher 138.	10 00
		O. C. Crocker, premiums, class five, voucher 139.	10 00
		W. H. Morse, premiums, class five, voucher 140.	10 00
		E. S. Sherman, premiums, class five, voucher 141.	8 00
		S. B. Paine, premiums, class five, voucher 142.	7 00
		S. Leggett, premiums, class five, voucher 143..	5 00
		Mrs. Emma Brooks, premiums, class five, voucher 144.....	5 00
		S. S. Whitman, premiums, class five, voucher 145.	5 00
		Danl. Bushman, premiums, class five, voucher 146.	5 00
		S. B. Rowley, premiums, class five, voucher 147.	5 00
		H. G. Warner, premiums, class five, voucher 148.	5 00
		C. Chapman, premiums, class five, voucher 149.	5 00
		E. Driver, premiums, class five, voucher 150...	5 00
		P. I. Siverson, premiums, class five, voucher 151.	5 00
		H. Glass, premiums, class five, voucher 152....	4 00
		W. Hodges, premiums, class five, voucher 153..	3 00
		Mrs. Emma Brooks, premiums, class five, voucher 154.....	3 00
		O. W. Ellis, premiums, class five, voucher 155..	3 00
		H. G. Warner, premiums, class five, voucher 156.	3 00
		P. Golden, premiums, class five, voucher 157...	2 00
		C. A. Paine, premiums, class five, voucher 158.	2 00
		W. Jennings, premiums, class five, voucher 159.	2 00
		H. A. Brown, premiums, class five, voucher 160.	2 00
		Mrs. W. H. Graves, premiums, class five, voucher 161.....	27 00
		Carried forward	$3,809 11

	Brought forward	$3,809 11
1868.		
Oct. 2.	Mrs. John Johnson, premiums, class five, voucher 162	25 00
	Mrs. Ann Clark, premiums, class five, voucher 163	25 00
	Mrs. H. B. Gilbert, premiums, class five, voucher 164	20 00
	Mrs. D. P. Flynn, premiums, class five, voucher 165	15 00
	C. L. Dayton, premiums, class five, voucher, 166	14 00
	Mrs. C. Murray, premiums, class five, voucher 167	8 00
	Harriet Cannell, premiums, class five, voucher 168	3 00
	W. H. Cook, premiums, class five, voucher 169	3 00
	Elizabeth Hyatt, premiums, class five, voucher 170	3 00
	Abel Dryer, premiums, class five, voucher 171	3 00
	Mrs. A. D. Burleigh, premiums, class five, voucher 172	3 00
	Ellwanger & Barry, premiums, class six, voucher 173	98 00
	C. W. Crosman, premiums, class six, voucher 174	59 00
	Frost & Co., premiums, class six, voucher 175	38 00
	J. L. Clark, premiums, class six, voucher 176	30 00
	A. Wilder, premiums, class six, voucher 177	25 00
	E. Ware Sylvester, premiums, class six, voucher 178	25 00
	E. Ware Sylvester, premiums, class six, voucher 179	1 00
	W. S. Little, premiums, class six, voucher 180	15 00
	R. H. Brown, premiums, class six, voucher 181	13 00
	Mrs. L. Lyday, premiums, class six, voucher 182	10 00
	Thos. Paul, premiums, class six, voucher 183	8 00
	J. M. Edmunds, premiums, class six, voucher 184	7 00
	Edwin Nichols, premiums, class six, voucher 185	5 00
	Jas. Sprout, premiums, class six, voucher 186	5 00
	S. D. Eaton, premiums, class six, voucher 187	3 00
	J. P. Baker, premiums, class six, voucher 188	3 00
	H. Siverson, premiums, class six, voucher 189	2 00
	C. Olney, premiums, class six, voucher 190	1 00
	R. Godley, rosettes, &c., voucher 191	20 00
	C. Van Benthuysen & Sons, premium lists, cards, &c, voucher 192	222 83
	C. Van Benthuysen & Sons, premium lists, cards, &c., voucher 193	200 33
	Geo. H. Lovett, bill of medals, voucher 194	454 80
	M. H. Cochrane, value of medal, voucher 195	85 00
	Strong & Hoyt, premium on horse, voucher 196	8 00
	Carried forward	$5,270 07

		Brought forward	$5,270 07
1868.			
Oct.	2.	John McGraw, cheese, &c., voucher 197	20 00
		N. Culver, melons, &c., voucher 198	8 00
		N. Hickman, domestic goods, voucher 199	2 00
		A. H. Van Ness, horse, voucher 200	5 00
		J. E. Lovecraft, domestic goods, voucher 201	2 00
		M. F. Reynolds, horse, voucher 202	15 00
		Isabella O. Tyler, domestic goods, voucher 203	1 00
		W. H. Duval, harness, voucher 204	5 00
		E. Kraft, harness, &c., voucher 205	13 00
		Mrs. Haines, domestic goods, voucher 206	6 00
		M. J. Perrine, domestic goods, voucher 207	3 00
		J. Corbin, grain, &c., voucher 208	23 00
		I. D. Williams, roller, voucher 209	10 00
		Flint & Co., saws, voucher 210	5 00
		A. Shaw, wine, voucher 211	3 00
		Clara B. Clark, butter, voucher 212	10 00
		Vedder & Beck, harness, voucher 213	5 00
		B. Birdsall, potatoes, &c., voucher 214	7 00
		John D. Wing, cattle, voucher 215	55 00
		M. F. Potter, milk pail, voucher 216	3 00
		S. L. Titus, hops, voucher 217	5 00
		N. Culver, vegetables, voucher 218	2 00
		Benj. Fellows, steer, voucher 219	10 00
		A. S. Johnson, vegetables, voucher 220	5 00
		Mrs. Gilbert, wax work, voucher 221	5 00
		Mrs. Van Namee, flowers, &c., voucher 222	74 00
		Jas. Vick, flowers, &c., voucher 223	37 00
		D. S. Heffron, services as judge, voucher 224	10 36
		Abram Tabor, services as judge, voucher 225	8 60
		F. W. McKindley, implements, voucher 226	15 00
		D. R. Barton & Co., implements, voucher 227	5 00
		Total	$5,648 03

ADDRESS

TO THE NEW YORK STATE AGRICULTURAL SOCIETY, DELIVERED AT THE ANNUAL MEETING, FEBRUARY 10, 1869,

By Thomas Hall Faile.

Members of the New York State Agricultural Society:

I rejoice to see here so many of the working members who were present at this time last year. So far as I know, the hand of death has touched but one in the circle of those who have more especially given their time and attention in furthering the interests of the Society, many of whom have been for a long time identified with it; and in this we have much cause for thankfulness to Almighty God.

We have also great reason for gratitude, that God, in His good providence, has blessed the people of our State, not only in giving us a fruitful season, and richly crowning the year with plenty, but in mercifully averting from us the pestilence and famine which have afflicted many other lands, and in sparing us the desolation wrought in some parts of our own country, by earthquakes, hurricanes and other convulsions of the elements.

In performance of the principal duty incumbent upon me, on this occasion, gentlemen, I shall ask your attention mainly, and as briefly as possible, to matters relating to our Society, rather than to a dissertation upon deep plowing, top dressing or other kindred subjects, on all of which you are better informed than myself. As changes have already been made, and more are contemplated, this seems a proper time to do it, that those of our members who do not regularly attend the Annual Meetings and Fairs, may become better acquainted with what is being done.

The clear and comprehensive report of the Treasurer will satisfy the most skeptical that the funds of the Society have been judiciously used, and that the balance on hand is safely invested. The whole amount is $17,677.96, of which $15,701.50 is in stock of the United States; and it is hoped it will be added to from time to time, making a fund that will relieve the Managers

of much anxiety, in the event of an unsuccessful Fair; a contingency we are always subject to by stormy weather.

The Secretary's report, you have heard; and though, in the dispensation of Providence, the illness of our honored Corresponding Secretary, Col. Benjamin P. Johnson, deprived us of his valued services a considerable part of the year, the duties of the office have been most faithfully and satisfactorily performed by the Recording Secretary, Mr. Thomas L. Harison.

Before speaking of the Fair, I avail myself of the present opportunity to congratulate the Society that no work was permitted or done on the fair ground on the Sabbath other than the necessary care of the live stock. The sound of the hammer and the saw was not heard there on that day. For this the Board take to themselves no merit over those who have preceded them. Heretofore it has been considered an unavoidable necessity; we thought differently, and having before us the law of God and the law of the land, gave public notice through the newspapers, that the gates would be closed on Saturday night and not re-opened until Monday morning, except to admit live stock and those persons having charge of it. The result, I believe, meets the approval of every right minded person in the State.

The Fair was largely attended, and that without any of the extraneous means now, unfortunately for the good morals of the people, resorted to for financial success in many of the State and county fairs. No trials of speed of either running or trotting horses, nor shows, nor games of any kind have ever been allowed on the fair ground of the New York State Agricultural Society.

While but few will object to these at the proper time and in the proper place, none can truthfully say that an agricultural show was ever intended to be combined with such exhibitions. And in this connection I will not hesitate to express an earnest hope *that our Legislature will withdraw all aid from every county society that perverts the funds of the State to such uses.* It is a libel upon the intelligence and good sense of the farmers, to suppose such things are necessary to make a Fair attractive or financially successful. The net results show that they will support all fairs where the managers conduct them in accordance with the principles on which our agricultural societies were founded, viz: "The diffusion of useful knowledge."

It is difficult to estimate fully the amount of good our State

Society has done by strictly adhering to this one point. By so doing it confers a benefit on both visitors and exhibitors. It is in these great gatherings that inventors and manufacturers find encouragement and support, and without them the farmers would be long in knowing of or procuring the implements now so essential to successful cultivation. I think it is a mistake to suppose that manufacturers of agricultural implements attach any importance to the *cash value* of premiums. It is the opportunity to exhibit and make them known which they want, and this they get at every well conducted fair, whether State or county; in proof of which, I was told by an exhibitor of a small implement at the last Fair that he had spent over $30,000 in exhibiting and introducing it, and had been well compensated for his outlay by sales which he never could have made but for the fairs. The exhibition of machinery and agricultural implements was the crowning excellence of the Fair. The increased number of new machines, and the improvement of those long known for their usefulness, showed in a stronger light than ever before the marvelous inventive genius of our people. The time has passed when mere hand work can make the cultivation of the soil remunerative, and it is only by the use of improved implements that success can be attained. Even in the remote parts of our country the scythe, the sickle, and the cradle, have been superseded by the mowing machine and the reaper, and by means of these and other agricultural implements the fertile lands of the West have been brought into use, making Chicago the most important port in the world for the shipment of cereals. And while speaking of this part of the exhibition, I cannot omit to mention the indefatigable exertions and very efficient services of James Geddes and Henry Waterman in this department, which I think entitle them to the thanks both of the Society and the exhibitors.

The different trials of implements, mainly agricultural, have resulted in such vast benefit, not only to farmers, but to the whole community, that another should not be long deferred. In ditching and digging machines especially, there is open a wide and very important field for improvement and invention; and when the vast quantities of wet lands which could be reclaimed and made valuable by ditching, and the unavoidably slow work of the present method are considered, it seems to me that the Society might do great good by offering an opportunity for a competitive trial of these important machines; more especially as it is now claimed that there

is a rotary digging machine in Illinois which has been successfully operated.

It has been suggested that a separate trial should be made of portable steam engines, sewing machines, etc., but it would seem that all such inventions can be more effectually tested by those whose interest it is to procure the kind best adapted to their purposes. I allude to manufacturers, especially those using sewing machines, who, in preparing the various articles in their line, aim to have the best, and to whom $5,000, $10,000 or $20,000 is a small expenditure for ascertaining that fact. Hence, I think that no premiums or certificates of merit should be given to such articles at our fairs.

Nor do I think there should be any awards for pianos or musical instruments of any kind. In the great national exhibitions held in London and Paris, where the highest musical talent in the world was congregated, it was, no doubt, proper; but farmers are not supposed to be Mozarts and Rubinis, and a certificate of merit or superiority of one instrument over another is simply absurd, and leads to unnecessary trouble and dissatisfaction. As before mentioned, the opportunity to exhibit to such large assemblages as frequent our State Fairs is what the makers want, they knowing full well the advantages to be derived from it.

The show of cattle was never surpassed in excellence of quality at any fair in this country. However, it is just to say, that it was much assisted by Mr. M. H. Cochrane, of Montreal, and Compton, Canada, who took home a number of first premiums. If more of our breeders of fine stock had done (I say it with all due deference) as they ought to have done, this might or might not have been so; but so long as they withhold their stock, apparently in the hope that some one else will take the risk and trouble of contributing, no well-wisher of our Society can regret if our Canadian neighbors take every prize.

The fruit and flower department was so perfect and has been so much lauded, that I deem it only necessary to express the great obligation the managers were under to Mr. James Vick, of Rochester, who made all the arrangements, and generously incurred considerable personal expense, besides giving his whole time to the exhibition, thereby relieving the officers of much anxiety in regard to this very beautiful and attractive part of the fair.

Surprise was expressed at the last Fair that no premiums were offered for thorough-bred, or in other words, race horses. The efforts

of this Society have been, and should continue to be, put forth for the promotion of the agricultural interests of the State, and these, it would seem, will be best served by encouraging the production of that which is most generally useful, in so far, at least, as live stock is concerned. For large, active horses, of about sixteen hands, there is always a great demand, at high prices; and a farmer who will use mares can raise one or two colts of that kind every year, by merely exercising the necessary care in selecting a stallion of good size and temper, and of requisite bone and muscle. If the stallion be a thorough-bred, so much the better. In portions of Europe, where the climate permits of plowing being done nearly throughout the year, the Clydesdale and other heavy draught horses are no doubt used to advantage; but in this State, with its long winter, the farmer cannot afford to keep a team for any special purpose, and as those which come under the class of "Horses of all work," will do almost anything that heavy draught horses can do, and do it quicker, and at the same time are available as roadsters, I think the Society will most benefit the farmer by encouraging the breeding of horses adapted to *general purposes.* I do not object to, nor under-estimate, the thorough-bred horse, but the money value of those of good pedigree and fine qualities is so great that very few farmers can afford to own them, and those of inferior quality have nothing to recommend them, either as roadsters or work-horses. The simple truth is, that farmers have no use either for weedy thorough-breds or for those little trotting horses so common at this time, and the breeders of them not only generally lose money, but run a great risk of spoiling their sons. For though there is no reason why it should necessarily be so, *yet it is undeniably true, that the racing and trotting of horses, whether at fairs or upon the track, is accompanied by falsehood, trickery, profanity, the excessive use of intoxicating drinks, and the disgusting use of tobacco.*

I find, with much surprise, that for many years past a premium has been offered for the cultivation of tobacco. I never heard of its being even suggested in any Executive Committee of the Society, and personally, I would as soon think of giving a premium to the man who could drink the most rum. All classes seem to indulge in it, and even ministers of the gospel, from whom we should expect a better example—I state it with much regret—use it in proportion to their numbers, almost as generally as the people of any other profession or occupation. I could give the names of several, were it not improper to do so, whose days were ended in insane asylums

from its effects. It is the forerunner of intemperance, and thus of almost every other vice; and it may not be out of place to state that the most experienced in the care of inebriates say, they never knew a permanent cure of a patient who continued the use of tobacco in any way. Thus, with a full knowledge of its evil influences, I trust this Society will never again offer a premium for its cultivation. Before leaving this subject, I desire to call your attention to the fact that over $800,000,000 are annually expended in this country for intoxicating drinks and tobacco. The sum has been stated as being really much larger, but that just named is, no doubt, under the actual amount; and all for that which is drunk—guzzled, would be a more appropriate word—smoked, chewed and spit away.

Now, if this immense expenditure, which in its results tends to vitiate and demoralize man, by injuring his physical, mental and moral nature, could be diverted to the supply of the necessary wants of the people, poor-houses would hardly be needed in our land, and prisons and penitentiaries would be almost unknown.

Since the formation of the Society, but little alteration has been made in the rules then adopted. They were suitable to that time, when, as in 1841, the gate receipts were only $349, and when this room or one of half the size would probably hold, with the exception of live stock, all the articles on exhibition. But the fairs have become so large, and their influence for good so greatly increased by the immense quantity of machinery, agricultural implements, articles of home manufacture, and stock of all kinds, that twenty-five or thirty acres do not furnish the necessary accommodation. Hence a change is absolutely necessary.

It has been the custom to allow entries to be made on the first day of the fair, often on the second, and sometimes even on the third day, thus causing confusion and difficulty in making the arrangements, and great anxiety to the managers, as under such regulations they must, of necessity, be entirely ignorant of what space will be required. This year we departed from the old custom and gave notice that machinery and live stock must be entered on or before September 14th, being two weeks before the opening of the fair. The advantage of this change must be so apparent to all, that it is quite unnecessary to dwell upon it; and if extended to every article, as I trust it soon will be, the arrangements can be perfected to the benefit of exhibitors and visitors, and much to the convenience of the managers, the clerical force, and all the employees of the Society.

It is wonderfully strange, that, with all our readiness to adopt improvements, we should have gone on so long in this slip-shod way, behind every nation on the globe where fairs are held. I am not much in favor of anything foreign, especially since the Rebellion, but in the matter of fairs, the Scotch and English, and even our Canadian neighbors, are much in advance of us, and we should not hesitate to copy from them, unless we can find out something better.

The Royal Agricultural Show of England of last year opened on Thursday, July 16th, and the entries for implements closed May 1st, being over ten weeks before the opening, and for live stock, June 1st, being over six weeks. For the Highland and Agricultural Society's Show of Scotland, all entries closed over six weeks before the opening. Entries for the shows of the county societies are closed generally about a month in advance.

Now look at the contrast here. Our fair last year opened, as usual, on Tuesday. On that day I received, in Rochester, a telegram from a distant part of the State, some 300 miles, I believe, from a person who wished to enter a carriage on Thursday. Again, after the judges of stallions had finished their examinations, made their report, and one of them had left for home, a man, who had been refused in the business office, appealed to me to allow him to enter his horse for competition. I told him what I have just stated, and added, which I should not have done, that he could enter the horse for exhibition; but even that did not satisfy him, and he went away, no doubt, much disgusted with the management of the fair. These are but two of dozens of just such cases that are occurring every year.

Now, gentlemen, may I not ask with propriety, and in all seriousness, whether it is consistent with common sense, in view of the magnitude of the New York State Agricultural Society's Fairs, to continue rules so ill adapted to their present and prospective wants? I am sure you will say no! And I feel confident that the exhibitors will say the same, and that they are ready to conform to any rules which the officers of this Society may make, knowing that their only motive is to promote its best interests, and that whatever benefits it the most, will, in a fully equal degree, be beneficial to the exhibitors also. Hence, though I think that the sooner we adapt our rules to the present enlarged sphere of the Society the better, yet in deference to a few who think a year's notice should be given, I recommend that, during the fair, and throughout the present year, notice

be circulated in every possible way, that in all classes, excepting only flowers, fruits and vegetables, entries will be closed from two to four weeks prior to the fair, as the Executive Committee may deem best.

When the entry is made, the entrance fee should be paid, and a description of the animals, machinery and implements furnished for publication in a catalogue, which should be ready when the fair is opened, and sold at cost. The price of the machine or implement, and the place where sold or manufactured, should also be stated, and this would be greatly to the advantage of the exhibitor.

A change may also be made in the time of opening our fairs, which I think will add much to the convenience of all concerned.

If opened on Monday, or Friday, and continued as now, four working days, no exhibitor need be absent from home more than one Sunday; whereas by the present custom he is often detained over two Sabbaths, and is thus subjected to greater risk and expense. Besides, if every article was in its place a day or two preceding the opening, the judges could make their examinations, particularly in the machinery, implement and domestic apartments, more efficiently and in much less time. No judges ever worked more faithfully than those of the domestic department of the last fair, who devoted three days to the examination, and yet did not even see some of the articles, owing to the immense crowd of visitors during a part of Wednesday and the whole of Thursday. Now, if the work of the judges could all be performed before the fair is opened, all days would possess an equal interest; but by the custom of permitting entries on the first, second and even third day in some cases, Thursday has become the great day of the fair, to the discomfort of many, and I may add, disappointment of some who are compelled to return home, having seen only a small part of the exhibition.

In this connection, another important consideration is the convenience of the railroad companies, by which we are always greatly favored. Their managers have often been unjustly censured for not furnishing the accommodation required on the third day; but when the business of nearly four days is crowded into one, it is easy to see how impossible it may be to provide satisfactory equipment, without neglecting other service having quite as good a claim.

I also wish to bring to your notice the importance of greater efforts to increase the number of life members, from among whom your officers are chosen. If each member would add one or more—and I am sure there are none who cannot do it—besides increasing the

funds of the Society, it would give a wider field to select from, and help to diffuse throughout the State a more general interest in it than now exists.

The Legislature wisely, I think, made two appropriations, one in 1867 and the other in 1868, of $5,000 each, to be expended under the direction of the New York State Agricultural Society in the investigation of the causes of abortion in cows. It was ably conducted by Dr. Dalton the first year, and by Dr. Carmalt during the last, and as judiciously and with as much economy, I believe, as the character of the investigation admitted of. Both have made their reports to the Society, and though they develop many interesting and instructive facts, which will, no doubt, prove of value to breeders, still the cause of the disease and the cure remain undiscovered. While all will regret this, the results do not seem to justify the Society in recommending any further appropriation for this purpose.

After the able address by the Hon. Andrew D. White, showing the advantages of agricultural education (in the proper sense of the term), I will only refer to one branch of it, viz: Agricultural Chemistry.

I am glad that there is at last in our State an institution, the Cornell University, which gives promise of a thorough course of instruction in practical chemistry and mechanics as applied to agriculture, and we have good reason to expect great results from it. For apart from the noble gift of its founder, Ezra Cornell, the munificent donation by the State of New York, of the 990,000 acres of land received from the general government for educational purposes, and which should have received the title of the State endowment, will place it, financially, above any other institution in this country. I am aware that some of our best farmers attach little or no importance to chemistry thus applied, and one of the most intelligent I know, says a bushel of plaster on his land will produce a ton of clover, and no chemist can tell why. He may not be aware of another fact; that a bushel of plaster on land near the shores of Long Island Sound, is worth about as much for producing clover as a pinch of snuff. But if the causes which produce these different results are not known now, they probably will eventually be discovered; for though agriculture is as old as the world, I cannot but feel that we are, as yet, upon the threshold of improvements which no distant day will witness. I anticipate the time when every educated farmer will be able to determine chemically what special fertilizer or manure his farm

needs to produce the best results in certain crops, and when the returns for his labor will be double or even quadruple what they are now. With the increase and application of this knowledge, not only will crops be enlarged, but land now producing little or nothing will be made productive, to the mutual benefit of the owner and of that vast laboring population to whom an abundant supply of the necessaries of life is of such vital importance.

Now this is not, I think, mere speculation, for, comparing the past with the present, the wooden plow with the steel, the scythe with the mower, the cradle with the reaper, and the flail with the threshing machine, we find an advance of many hundred fold over the wisdom of our fathers in the use of labor-saving implements and machinery. A like advance in almost every department of science, is one of the most noticeable features of the age. Then, why should agricultural chemistry alone be unprogressive?

That this has been the case heretofore, is the strongest reason for anticipating that the advance will be rapid, now that thinking minds will have the opportunity to be practically brought to bear upon the subject, nearly unhampered by the want of pecuniary means, which has usually been the most serious hindrance in the pursuit of science.

I wish to say a few words in regard to a class of men who have done as much, if not more, to promote the agricultural interest of this country, than any other, and yet, since my earliest recollection, they have been sneeringly called "fancy farmers!" They are generally mechanics, manufacturers, or merchants, who have been successful in their vocations, and who have invested the first money they could spare from their business, in land and in making improvements upon it. They may occasionally have a ditch dug and find that the water runs the wrong way, but this hurts nobody, and gives employment to those who need it for the support of their families. They do not watch the almanac and discharge their workmen when the days become short, but employ the poor when the weather and the hours for work do not admit of a compensating return, which the man who has no other means of support than the product of his farm, cannot afford to do. These men are to be found in almost every part of our country, and may be known by the houses for their workmen, their land and their out-buildings being in better order than any others in their neighborhood. They are the first to buy what is called improved agricultural machinery and implements, which do not always prove so. Not being dependent upon their farms, they can

afford to experiment; sometimes they are successful, sometimes not; but when they are, every farmer gets a benefit from their outlay. It is largely to such persons that we are indebted for many of the improvements in husbandry, and still they are sneeringly called "fancy farmers!"

I could enlarge much upon what they have done and are doing for the cause of agriculture, but do not wish to trespass upon your time, save to say that I hope we may have more like them, more of such men as Mechi, of London, the Razorstrop man, as he was and probably still is called by some, who has done more to promote practical and scientific agriculture by his writings, addresses and experiments than thousands of rich farmers, and it is only such I allude to, who seem to live for no other purpose than to accumulate wealth.

Before closing, I desire to express my most sincere thanks to the officers of this Society, for their earnest and active co-operation throughout the year. With the exception of two Vice-Presidents, and of our venerable Secretary, who, as before mentioned, was detained by illness, every officer was present at the fair. They devoted their whole time to the work; and to them, with Ex-Presidents J. Stanton Gould and General Patrick, who rendered most efficient aid during the four days, and to Colonel Bowen, the superintendent, the Society is indebted for whatever there was of completeness in the arrangement, good order and success.

I also wish to express my thanks to Ex-President James O. Sheldon, for his valuable assistance. He was unavoidably prevented from being present at the fair, but attended all our meetings at Rochester prior to it. Ex-President T. C. Peters had removed to another State; therefore, his presence could not be expected.

It has not been the custom to mention the attendance of the Board, though it would be a good rule; but it was so unusual, and believing, as I do, that no President of this Society has ever been more efficiently and cheerfully assisted in the performance of his duties, I would not do justice to my feelings if I omitted it. For the good of the Society, I hope their example will be followed by all who may succeed them; as on the regular and punctual attendance of the managers, depends, in a great measure, its prosperity and usefulness.

There is one event I cannot mention without deep and sincere regret, and I had hoped the duty would have fallen upon some other presiding officer, in the distant future. I refer to the retirement of Benjamin P. Johnson, our venerable and honored Corresponding

Secretary. Col. Johnson was elected President of the New York State Agricultural Society in 1845, which office he held, as is customary, one year. In 1847 he was elected Corresponding Secretary, and has since been re-elected in each successive year. Many of those present are his intimate personal friends, and, having been associated with him in the management of the Society, well know with what unwearied industry, zeal and ability he has devoted himself to his duties; and, without derogation of the merits of any of those who have been his co-laborers, I think that to Col. Johnson, more than to any one person, is due its great success, usefulness, and present high position. But failing health during the past summer and fall, admonished him that he was not likely again to be able to do his duty, as in times past, and with a propriety characteristic of the man, he requested to be relieved from further service. The Society, as you know, assented only in part, but to its credit would not and will not give him up. He is now its Recording Secretary, and in that position I trust we shall continue to enjoy his companionship, so long as the silver cord of life remains unsevered.

The same Providence that has protected us during the past year, will, I trust, guard us during the year to come, and enable us to meet here again with increased strength and energy for the faithful performance of our duty.

I have now only to introduce to you my successor, and I congratulate the Society on having elected a gentleman so eminently qualified. It gives me great pleasure to introduce to you the President-elect, the Hon. Samuel Campbell, of Oneida.

ADDRESS

OF THE HON. ANDREW D. WHITE, PRESIDENT OF CORNELL UNIVERSITY, ON AGRICULTURAL EDUCATION.

Apart from one or two great political and moral questions of our day—questions of life or death, and which, apparently, must be settled soon—no national problem is eliciting more earnest thought than the relation between education and the great fundamental industries.

This thought you see taking firm shape in various countries; shapes often vague and unreasonable, but sometimes crystallizing solidly into institutions.

The whole brood of litterateurs may declare against this thought, may ridicule it, may ignore it; the whole brood of scholars may proclaim the beauty of the honored old courses of study, may indeed prove quite satisfactorily that they are the *only* courses; and yet men in all parts of this land and other lands keep on thinking upon this question of a new education, keep on planning for it, keep on thinking that it *ought* to be, keep on believing that it *will* be.

In England, tied more firmly than any nation to mediæval systems of education, you see Lawes and Gilbert, one giving his fortune, the other giving his life-work, in the application of science to agriculture, at the laboratory and farm of Rothamsted. You see Voelcker and many compeers, in their laboratories and lecture-rooms, bringing scientific methods to bear directly on sources of fertility. You see an eager body, of whom Mechi is a type, bringing the results of these theorists to bear upon economic practice. You see a peer of the realm, one of the lordliest names in English history, seconded by a goodly faculty, carrying on the Agricultural College at Cirencester, endeavoring to send forth every year a few apostles of scientific agriculture.

So, too, in France, the nation most given to revolution, but also most given to routine, you see the idea of scientific education, pure and applied, taking such noble shapes as the Polytechnic, the Schools

of Arts and Trades, of Manufactures, the Imperial Colleges of Agriculture at Grignon, La Saulsaie, and elsewhere.

In Germany, where the older scholarship has had its fullest bloom and fruitage, you see a host of magnificent establishments of this new sort, typified by the Polytechnic schools at Carlsruhe and Stuttgart, the School of Manufactures, at Berlin, the Agricultural College, at Hohenheim, and the Agricultural Department of the University of Bonn.

And in our own country, the legislation of Nation and of States, the utterances of the press, various plans, various attempts, show the same longing and belief.

All this is new; much of it is crude. There have been stumblings and blunderings and failures, and there will be more; but the idea lives. Evidently, it is not to be scolded out of existence by solid review articles, or pooh-poohed out of existence by pleasant magazine articles. Evidently, the idea is rooted in our planet, and will hardly be pulled up by narrow literary men, who hold the time-honored studies the most "eminently respectable;" or by narrow practical men, who disbelieve in "book learning;" or by narrow religious men, who fear that geology may harm Genesis.

So much for the strength and prevalence of this thought. The question then arises: Has this idea of a new education foundations?

Numbers of excellent men will tell you that it has none; that the old methods will never be superseded; that the studies which best suited the world in the days of Erasmus best suit it now; that there is no other mental discipline comparable to that supplied by the time honored courses of study.

Elsewhere I have attempted to answer this; the full answer seems not difficult, but I shall not now repeat it. The simple fact that these ideas have struck so deep and spread so far gives sufficient basis for what I have to say to-night. The hold which they have on so many earnest and capable men in all lands certainly raises a sufficient presumption that there is something in them.

I pass then to the first practical question: "*What shall this new education be?*" In this system of education, which we hope to see established, this system which co-ordinates the development of the human mind and the development of national industries, what shall be our aims and methods?

First of these, I name the education of the power of observation.

Moving before us all is this great God-given panorama of things and thoughts ; of forces, and currents; of growth and decay. It spreads in special beauty and wealth before the agriculturist. Unfortunately, while all *see* it, few *observe* it. Men generally see clearly only what others have pointed out to them ; they have not the habit of detecting for themselves new good so as to use it, or new evil so as to shun it.

Millions of men had seen the steam rising from a kettle. James Watt saw that and more; he observed in it *power*, and therefrom he drew the steam engine.

From the earliest ages, men had seen trees. John Smeaton *observed* them, and built Eddystone light-house.

Sailors on every sea had looked at the teredo. Brunel observed it, and found therein a model of the shield and enginery for the submarine tunnel.

In all lands, men had scratched the earth with rude implements for centuries ; they had seen the furrows their fathers had made ; they had seen the instruments with which their fathers made them. In these latter days, strolling out on the Roman Campagna, I examined the first plow in my way, and found it exactly the plow described by Virgil.

But modern men, in countries more active, observed the instrument and the problem, and forth came the series of modern plows ; and the wealth of the world was increased more than by new Golcondas.

Those who see are millions; those who observe are but scores. Every addition to this corps of observers is an addition to the wealth and force of the country.

Now nothing is more certain than that these powers of observation can be cultivated in men who have them partially, and aroused in men who have them not at all.

Interest a young farmer in natural and physical science, especially as applied to things which bear on his tastes or aims or general pursuits, and you have given to his powers of observation a stimulus; educate him to a moderate degree, and you give him method ; educate him thoroughly, and you give him power.

It is wonderful to note how the powers of observation may be thus trained. At the Rothamsted laboratory, Dr. Gilbert pointed out to me peasant boys with bundles of grasses before them. They were great bundles, representing the results on different plots enriched in different

ways. These boys, with a quickness almost preternatural, sorted out all the different species, placing each by itself, that the definite result of each mode of treatment on the growth of each kind of grass might be accurately known. Merely to see once this exhibition, this thoroughness of observation by the master, this quickness of observation by the scholar, was in itself a lesson never to be forgotten.

That power of observation is the power which in agriculture has steadily perfected machines, improved herds, and flocks, and fruits, dried marshes, restored the lands of exhausted States.

It is more than that; it disciplines men for observations of all sorts, not only for things of matter, but things of mind.

The next thing in this education of which we speak, is the education of the power of practical reasoning. This is closely allied to the power of observing, exceedingly important as to its general effect; as to its complete effect, vital. For it constantly happens that there must be not merely observation of a single train of facts, but also a proper connection between several trains of facts.

Observations had been made on small-pox; observations had been made also in animal pathology. Jenner combined the two, and gave the world Vaccination. Men had noted the speed of the galvanic current; they had also observed the power of the current to produce temporary magnets. Morse combined and reasoned, and produced the first registering electro-magnetic telegraph.

The general phenomena of vegetables had been observed; the chemical constitution of substances had been observed. Liebig combined reasonings on both, and developed the science of agricultural chemistry.

In that wonderful History of Civilization, which, incomplete as it is as a whole, wrong as it is in parts—is one of the greatest of human works, Buckle declares that in the scientific world the results of observation are piling up to great height; but that what is wanted is the reasoning to combine these observations, and to deduce principles from them. So, in the practical world, observations are made in vast numbers. Our reports are filled with them; but we want men trained to combine them, to reason upon them, to deduce from them the meanings which are fraught with good to industry and to man.

Can men be better educated to this also? We believe that they can. For ages men have been taught to reason acutely on theological and metaphysical problems; for many years men have been taught to reason on questions of natural science. All analogy shows

that the old methods applied to the new problems would do much, and, doubtless, out of them would come new methods, which would do more. Take the young student, bring him thoroughly into the trains of reasoning followed by Liebig, or Farraday, or Johnson, or Gilbert, and you prepare him to bring his own reason to bear on observations in the same way.

The third object of such an industrial education which I name, is to bring these powers of observation and reasoning to bear on practice.

Here comes in the necessity for large acquisitions of scientific and general knowledge. For, first of all conditions to this, you must instruct the student what the general problems are; what steps have been taken for their solution; what laws, natural and physical, God has given to aid in their solution; what appliances and combinations man has constructed for it; that is, you are to instruct the young man thoroughly in the sciences and arts on which the great industries are based.

Of all the great pressing *material* needs of this land to-day, this is the greatest. We have the most ingenious people, the most earnest people, the most wide-awake people, the world has ever seen. We have not the system of instruction to make this ingenuity and earnestness tell to the best advantage, to keep them from giving years to investigations already made, or working at problems already solved. Great as are the results of American ingenuity and skill, I believe that they would be at once doubled and quadrupled by a proper system of advanced instruction bearing upon agriculture and the mechanic arts. Who can estimate the value in money to this nation of the mower and reaper, the telegraph, the sewing machine, the steam engine? But there are, doubtless, other inventions, in the ages ahead of us, as good as these. Doubtless, if we go on as we have been going on, we shall stumble on one after another of them during the coming centuries. But, with institutions of practical learning, such as we ought to have; such as France, and England, and Germany already have, I firmly believe that these inventions would come rapidly. Place such an institution as the French Conservatory of Arts and Trades in the midst of this intensely ingenious and practical people, and it *must* give an immense stimulus and a noble direction to all this ingenuity and activity.

I maintain that this advanced, thorough education, bearing directly upon the great industries, agriculture, the mechanic arts, engineering, mining, &c., is what the country now materially most needs.

And here I combat an error; an error which some excellent men have fallen into; an error which has terribly injured industrial education already, and which, if persisted in, will ruin it.

This error is, that your endowed institutions for education applied to industry, are intended to give *primary* instruction in the rudiments of agriculture and the mechanic arts; that is, that in agriculture they are to take young men who never touched a spade; who do not know wheat from barley; who are too indolent or too proud to go upon a farm, and teach them the A, B, C, of farming, the usual method of spading, hoeing and plowing, just as they might learn it in every field of this broad land. Or, that in mechanic arts they should take young men too indolent or too proud to go into the workshop, and set them at playing with tools, in the hope of teaching them to wield a hammer or shove a plane.

In short, the error is that a royal road shall be given young men, by allowing them to play mechanic or play farmer, while their parents are too proud to let them do the real thing.

Nothing can be more absurd; nothing more repugnant to the spirit which has prompted National and State endowments, nothing more fatal to the true practical purpose of these institutions.

The true schools for the *primary*, usual instruction in the mechanic arts, and for learning any special trade, are the workshops of the country. They are the most accessible, the most simple. Does a young man really wish to learn to handle saw, or chisel, or plane, these are the practical schools, these the practical teachers. They are all about him, just where they are wanted, in every city, in every hamlet. For that primary work—the learning the usual uses of the usual tools—no other schools can compare with them. Multiply your present endowments by thousands, and you cannot supersede the work of these primary industrial schools almost within a stone's throw of the hearth of every man. If you attempt to do it, you will fritter away your educational resources, and add, probably, one poor shop to the millions of good ones.

The same is true of agriculture. For instruction in the simple fundamental processes of farming, the schools are the farms. They are spread all over our country. They are ready to receive all young men who seriously wish primary training in agriculture. Even though the farm be poor, even though the processes be rude, that is the necessary preliminary school. It is accessible; it enables the young man to pay his way; it enables him to get time, if he be

thoroughly in earnest, to profit by the common school, the book and the newspaper. Rudimentary instruction as to implements and processes, can be got nowhere else so well. None other can supply the demand.

Multiply your endowments for agricultural education by millions, and you cannot meet this demand. You cannot supersede these myriad farm-schools in every valley and on every hillside. Attempt to do it, and you fritter away your endowment, and simply add one poor farm to the myriads of good ones.

The same is true in regard to the sciences and useful arts in general. The places for *preliminary* instruction are the public schools. They, too, are scattered through our State, almost, literally, within the sight of every household. Every year the State gives millions to them. Thank God for it. Pardon me for saying that, if there is one thing in my life on which I shall never cease to reflect with gratitude, it is that beneath this roof* I had the honor to introduce and report the bills which made those schools free, and which established the new normal schools to make them effective.

But while thus honoring primary education, I insist that it is folly to waste the special endowments of institutions for advanced instruction in agriculture and mechanic arts in attempting to duplicate or supersede these primary schools.

What then should the colleges for the promotion of agriculture and the mechanic arts attempt to do?

I answer: They should take young men where the farm, the workshop, the common school, leave them; young men who have already received a good sound knowledge and experience in the simple, usual processes of agriculture, and on that they should build, making them master farmers; thoroughly based in science bearing on agriculture; thoroughly trained in the arts bearing on agriculture; trained by studies of nature to use their powers of observation; trained by studies of science to use their powers of practical reason; trained by study of both sciences and arts to bring these powers of observation and reasoning to bear on important practical questions. Having learned much of the usual processes in farm work, they should be made to investigate new processes to find the facts or fallacies in them. They should be made to study not merely the plow and plowing as they could easily study them without stirring from their fathers' farms, but the very best theory and practice of plows

* The address was delivered in the State Capitol.

and plowing, of enrichment of soils, of drainage of lands, of rotation of crops, of construction of buildings, of breeding of animals, and the like.

With these should also be taught the principles of accounts, so that the student would know, not merely the farming which a millionaire might play at to deplete his fortune, but the farming which a thrifty settler might work at to increase his fortune.

This has been done. At the English Agricultural College of Cirencester, I saw accounts kept by students with every field, every garden plot, every experiment, that the education might not only tell on general science and practice, but on economical science and practice.

And here let me say that I would adopt another rule of that college at Cirencester. I would let no man graduate until, in addition to his thorough examination in pure and applied science, he had gone out on the farm with two experienced agriculturists and had passed a plain, thorough, common-sense examination in practical agriculture, answering their questions, how this field was treated, and why; what labor was employed on that field, and with what economic result; what he would recommend for the other field, and why; and so on to the satisfaction of the special committee.

You may by these methods send forth every year a brood of apostles of improved agriculture; apostles who shall go forth to preach the gospel of an agriculture, which shall be better scientifically, practically and economically; apostles who shall develop agricultural virtues and fight agricultural vices; whose farms shall be centers of new and good ideas; fortresses against quackery.

Take two examples of this. In 1818, De Dombasle established the Agricultural College of Roville. For several years, that establishment was a blessing to France. Records of its practical and experimental agriculture were published, and with the best effects. But at last Dombasle had sunk health and fortune, and the college stopped. It was spoken of as a failure. Was it a failure? Two young men quietly went out from it and wrote an answer on the soil of France; wrote it in letters so deep and wide that it will never be effaced. The first of these young men went upon the wretched, barren heaths of Brittany; took over 1,200 acres; brought to bear upon it the science and practice he had learned at Roville, and produced a noble, fertile farm. That farm is now the seat of an agricultural college, and a center from which has radiated scientific and practical knowledge for the reclamation of all that part of France.

Another pupil, M. Nevière, went forth; he went to the southeast of France. There he found, near the confluence of the Rhone and Saone, a district of sixty-seven square leagues; a marsh, supposed to be irreclaimable, with a scanty population, dying of fever. He took a farm of 1,600 acres, applied methods learned at Roville, and reclaimed it in two years. The reclamation of the remainder followed, the fever rate sank from twenty per cent to one-half per cent of the farm hands; the district is now the seat of a thrifty, healthy population, and in the midst of it stands the Agricultural College of La Saulsaie, a center of scientific and practical knowledge for all that part of France.

At the Imperial College of Grignon, they showed me a map of France, all dotted over. Each of those dots represented a graduate. There they were, in every corner of the country, each man thoroughly trained in the best science and practice of agriculture, and, justly indeed, is that institution proud of their character and influence.

The purpose of the department of the mechanic arts should be similar. It should aim to take the young man, when the workshop and the common school leave him, and make a thoroughly trained, scientific and practical master mechanic of him.

It is hard to make this idea understood at first. I have had ample opportunity to learn this difficulty during the last three months, while engaged in organizing the department of Agriculture and the Mechanic Arts at Ithaca. The wrong idea continually met us in shapes sometimes pathetic, sometimes ludicrous.

One father and mother brought their young gentleman, who could do nothing anywhere else. He had whittled out a toy very simple to the eyes of the world generally; very wonderful to the eyes of his fond parents. On the strength of this toy, it was evidently expected by them that he could get an education in books by droning over them; learn the use of tools by playing with them; support himself while thus amusing himself, and mend his morals and manners, while engaged in that branch of practical agriculture known as "sowing wild oats."

Another young gentleman, city bred, sickly, weakly, who had not the experience of any skilled labor; who had not the strength for any unskilled labor, wished to support himself by work while pursuing his studies; but when he discovered that work makes a man tired, wears his fingers and soils his clothes, he withdrew, making the air vocal with his complaints.

Another, with no available trade, no aptitude for labor, offered to favor the institution with his presence if he could learn a trade, carry on his studies, and save enough to board, lodge and clothe himself, beside sending twenty-five dollars a month home to his mother.

These are actual cases, and types of many others. It hardly need be said that these persons were all sadly disappointed, and that some of them were fierce in their denunciation of an institution which does not wish to begin its agricultural and scientific career by endeavoring thus to extract sunbeams from cucumbers.

I repeat it, our duty is not to do such work as this. We are not to establish a reform school, nor an intellectual alms-house. We should take sound, manly, capable young men, where the farms, the shops and the preliminary schools leave them, and give them back to the country, strong to develop and increase the resources of neighborhoods, states and nations. I repeat that this is to-day the most pressing material need of this land.

Take first the mechanic arts. It is easy in this department to make good my assertion that the blunderings and stumblings of unscientific master mechanics and engineers have cost more than enough to endow splendid industrial colleges in every State every year. Every State, every city, every canal, every railroad, has a wretched story to tell of imperfect estimates, bad plans and sunken capital. Out of the myriads of actual cases, take the first which occur to me:

In one city the simple problem was to carry a principal street over a stream at an acute angle; it required a "skew arch" bridge. You see them, beautifully made, all over Europe; but here was not an engineer who could construct one scientifically. Expedients and shams were resorted to, and as the sequel to each the bridge fell, and great was the fall of it, judging from the tax levy.

Another town has a skating rink. There are certain scientific applications of mechanical principles which will make a much larger roof absolutely sure against any possible pressure. They showed me at Moscow a roof five times as large, upheld without a column; but half skilled, uninstructed mechanical engineering is resorted to in this case, and the roof falls, and a bevy of children, tortured, maimed or killed, are dragged out from its ruins.

Another city has a great school; proper instruction in strength of materials and crushing forces would have made all secure; but avarice and ignorance combine, the builder rests his principal beam on

an insufficient corbel, and a whole hall full of simple-hearted mothers and merry children are precipitated, in a moment, into the abyss below, and the city plunged into mourning.

A railway company wishes to overcome a formidable steep. One expedient is tried, which costs much and comes to little; then a second, which costs more, and is little better; and now they are about trying a third.

A canal has to cross a river. The engineer, a man evidently of half instruction, makes no sufficient calculation for the water to be discharged beneath the arches; the river and the lake which feeds it are "set back," and whole counties are afflicted with malaria, of which the real cost can only be expressed in millions.

A patent-monger comes into a State, and common-sense, half instructed, mechanical engineering discovers no flaw in his pretensions; he sells his right, scoops up a fortune from county after county; manufactories are erected to make his machines, and it is found that some little scientific calculation, or some little scientific principle, was ignored, and all is wreck. Money enough has been lost in that way alone in this State to endow the most splendid schools of manufactures and engineering in the world.

In agriculture the same thing goes on, less apparently, not less really. Soils of whole districts are enfeebled and exhausted by ill-advised culture. The application of certain simple scientific principles would have kept the soil up to its highest productiveness.

Waste of the richest materials goes on. Materials are rejected as refuse which science would coin into gold. Good men see this. They make experiments; they report them. Unfortunately, they have hardly ever the scientific training to make their experiments thorough, or their reports exact. So their experiments mislead, and throw doubt on *all* attempts to better agriculture.

See for a moment what other lands, with not a tithe of American ingenuity and activity, do for this work. From the multitude of examples I will select two; one in mechanic arts, the other in agriculture; one in France, the other in Germany.

First of these is the Conservatory of Mechanic Arts and Trades at Paris. You pass first through long halls filled with machinery and apparatus. Every subject is represented by everything which can illustrate its development, character or application. Electricity is represented by every form of machine, and battery, and pile, for producing it; by every form of apparatus for studying its principles or

exhibiting its effects; by every form of telegraph; by every form of electro-motor.

Steam is illustrated not merely by apparatus, but by every modification of the steam engine from the days of Papin or Savary. There are scores of working models beautifully constructed, representing the progress of the steam engine from its earliest days until now: stationary engines of every form, and for every work; long rows of locomotive engines, exquisitely made, to display every useful modification; case after case of marine engines, of every construction—French, American, English or German—and so perfect that they can at any moment be set at actual work before the student. There, too, is every form of useful machine for raising water, every form of machine for marking time, from the earliest clepsydra to the latest chronometer; printing presses of all sorts; locks and locksmiths' work of all sorts. Here are the weights and measures of all nations; there the railway constructions of all nations—tracks, switches, trucks, wheels, brakes, all classified and arranged. Here are rooms filled with mills for every purpose; furnaces and machines for the extracting and refining of gold and other metals, for the extracting and refining of sugar and other products. Here is an immense hall, where machines of all sorts are in operation; here a splendid library filled with the industrial works of all nations; here lecture rooms, where the best professors instruct young men to uphold and extend the national glory as master-mechanics or engineers, using freely all these vast collections in illustration.

You say, perhaps, that this is the creation of a despot. Not at all. It was the creation of the people, a child of that great and glorious first French Revolution, which, despite English Tory historians and their American toady imitators, was one of the noblest and most fruitful efforts the world has yet seen. That school, and others like it, were the creation of the French people, and I believe the time is coming when like things will be done by the American people.

Take now, an example among agricultural colleges. Take the college at Hohenheim near Stuttgart. As you stand before those noble old buildings, you look forth first over the broad acres of a great model farm, a farm conducted in the best manner possible as regards laying out, processes, implements and economy. Directly in front of you, a wonderful union of beauty and of use, is the botanic garden, where fundamental principles of vegetation are clenched into students' minds so that they are sure to be retained. Yonder is the experi-

mental farm where science is at work observing, noting, combining to push further and further the domain of useful knowledge.

Enter the buildings. Here you have laboratories for preliminary training and for experiment; lecture-rooms thoroughly appointed; collections of models, among them one series of one hundred and fifty models of plows; collections of agricultural implements, collections of agricultural products, all arranged for effective instruction. Here is the department of veterinary surgery, with long ranges of models, instruments and specimens, with collections, for example, of horseshoes of every form, for every foot disease and every use.

You enter buildings where are ranges of improved breeds of living animals; workshops, where agricultural implements are constructed, all uniting science with practical value.

You enter the dwellings of the professors. Pictures are on the walls, books on the tables; there is that atmosphere of culture and refinement which does good to any student, even though his life-work is to be in the backwoods.

That institution has added to the value of every acre in the kingdom where it stands. Although those who till the soil are comparatively oppressed, uninstructed, unenergetic, it has bettered their condition. What, think you, will such institutions do in our American States, with their reading, thinking, energetic yeomanry?

And let me say here that there is one important element in our favor which they have not, the homogeneous character of our people.

For at this college, after making acquaintances among professors and students, I saw a large body of young men more plainly dressed, entering a lecture-room. Asking who they were, I was told that these were *peasant* students, not admitted to the same instruction with the others, but trained apart, to be small farmers and gardeners. I then realized fully the great difficulty in their case, which we have not. There, save in rare cases, the son of the peasant farmer cannot be admitted on an equal footing with the sons of noblemen or gentlemen. If he were generally so admitted, gentlemen and noblemen would not send their sons. Every great agricultural college in Europe must either be cut into two parts, with peasant sons in one and the gentry in the other, as at Hohenheim, or they must exclude peasants, sons altogether as at Cirencester.

Here, thank Heaven, we have no peasantry, and no such difficulty can embarrass colleges or offend the moral sense. Here, at least, we can admit all persons of all races and conditions on an equal footing.

Here, happily, we are freed from those distinctions of caste and creed. The prospect in America is good indeed. If we plan wisely, if we build carefully, we shall rival the old world in these institutions; but to this end we must observe certain plain rules.

First. As already observed, we must not fritter away our resources for advanced scientific, industrial and general education on preliminary education, which is given better by farms, shops, public schools and academies.

Secondly. There must be concentration of resources for advanced education. Such institutions as those we need demand a great outlay. There must be the best professors, buildings, libraries, cabinets, collections of models, apparatus, machines; there must be farms and shops, all of the best. These cost much money. To secure these we must keep funds for this purpose together. We must not fritter away the resources of a single State for this purpose on *several* institutions. It is not enough to have a professor of agricultural chemistry, or of mechanic arts here and there. You want them brought together with ample educational material of every sort.

In early days, when men traveled by stage coaches, it was important that colleges be scattered over the State; now, the case is different. Now that railroads and telegraphs have so nearly annihilated space and time, we can afford to concentrate our means.

Happily, in regard to the institutions recently created, every State save one or two has adopted this policy of concentrating resources for the highest scientific and industrial education, rather than scattering them. It is now recognized as an axiom: Scatter your resources for primary education, concentrate your resources for advanced education.

Thirdly. There must be no policy which implies a confession of the inferiority of scientific or industrial education. Here some wretched mistakes have been made. A very common error has been to separate agricultural colleges from others; to put them into remote corners by themselves. They have thus too often come to be regarded as the inferior college of an inferior caste. The State of Pennsylvania separated her agricultural department from all others, and then relegated it to an unattractive region, remote from any settlement, remote from any line of travel, demanding not only hard and difficult railway travel, but at all times of the year teaming over ten miles of wretched roads, and the people of that State wonder that their college is not more successful.

The State of Michigan did much the same thing. It indeed gave its agricultural college an excellent faculty; and they have achieved much success, considering their means, but infinitely better would it have been to combine that agricultural college with their noble university, making it a great department; making the professions studied there the equal of any profession; the farmer's son the equal of any man's son, giving him the same access to those noble laboratories, and cabinets, and libraries. It would have been far more economical, far more conducive to the highest interests and the truest estimation of agriculture.

This is the policy, happily, which now begins to prevail. Prussia and Scotland, so thoughtful in all that pertains to scientific and practical education, have adopted this principle. It is imbedded in the act of Congress of 1862, which lays stress not only on education in agriculture and mechanic arts, but couples with them scientific and even classical instruction. And the State of New York has adhered to this same policy, by uniting the colleges of agriculture and the mechanic arts on an equal footing with other colleges for other branches in one university, where each and all can be made better and broader by bringing general culture to bear on special culture. There is, indeed, a superstition in some quarters that studies for general discipline and culture, and studies for special discipline and culture, should not be brought together in the same institution; that there is an incompatibility of temper and pursuit between students whose aim is mental discipline, and students whose aim is a special profession.

I meet this *theory*, for it is simply that, on the ground of theory. Two-thirds of American students, while supposed to be studying to "discipline their minds," (that term has become very nauseous) are really studying in view of professions and duties beyond.

But why trouble ourselves with theories, when we can better meet the notion with plain fact? The plain fact is, that the two sorts of education *have* succeeded well together, and *are* succeeding well together. Students for general culture and students for special professions herd together in the greatest universities of Germany; and there has been no such trouble as these theorists say there ought to be. Students have for years met in the halls of the University of Berlin; one goes to hear Böckii and Curtius for Greek and Latin history and literature, with a view to general culture; another goes to hear Savigny or Gneist on law, in view of a special profes-

sion; another goes to hear Hengstenberg or Nitsch on theology, in view of a special profession; another into the laboratory of Hoffman, in view of a special profession, and there has been no explosion yet.

So, too, in the class rooms of our own University of Michigan. You may every day see students in general courses sitting in lecture rooms beside students who are to be civil engineers; and then, again, sitting beside those who are to be lawyers: and so far from being injured, all are thereby made better and broader.

I firmly believe that if the herds of young men who are droning over the metaphysics of the Latin subjunctive or the abstrusities of the Greek accents, and thus holding back those who are pursuing classical studies earnestly, could be brought directly into contact with the active, energetic study and practice seen in chemical laboratories and geological cabinets, their force and usefulness would be greatly improved thereby.

Again, you must tie these schools to no single sect. Sectarian institutions have done good work, no one can doubt it, but for your scientific and industrial institutions you want no sectarian control. I think all our sister States would do well to incorporate that provision of the State charter to the Cornell University: "And no person shall be accepted or rejected as officer, professor, or student, on account of any religious or political views which he may or may not hold."

If any person wishes to found or endow a sectarian institution, he is at liberty to do so, and we all wish him God-speed; but we have no right thus to fetter special State or national endowments. Professors must be selected not because they are or are not Presbyterian, Roman Catholic, Unitarian, Baptist, Episcopalian, or Methodist, but because they are the *best fitted to instruct.* On this principle, alone, can you ever have worthy institutions for scientific and industrial education.

Nor should you be too much afraid regarding truth. All over the land you shall find well meaning gentlemen in terror lest, somehow, scientific studies upset God's truth. They seem to think eternal truth the weakest thing going, a thing to be perpetually coddled and bolstered. Their predecessors trembled and bit, and burned, for fear of the idea that the earth revolves about the sun; then they were alarmed at geology; then at zoology and chemistry, and now many of them seem to think that it is safe to study nothing save some language so dead that it cannot possibly do harm.

Look into history, and you discover that truth has taken care of herself wonderfully well. Grand as glorious John Milton's praise of her power was, it was not a whit overstated.

Curiously enough, the main supporters of truth in every age have generally been the men thought heretics; and the worst opponents of truth in every age have generally proved to be these same timid gentlemen who have feared lest truth receive some detriment. Look through the whole range of history, you do not find one of the scientific investigators who has implanted a permanent error, but you find hosts of their conscientious opponents who for ages have cut out and burnt out truth. God's truth is mightier than the poets make it. Men's interpretations of truth are constantly changing; truth itself is never endangered. A true man, a man who has any faith, cannot fear science.

Again, whenever a "manual labor system" is attempted, it should be carefully adjusted to the demands of scientific and practical education.

The question arises what this manual labor should be. There are two theories. The first is that its entire aim should be to give the means to students of supporting themselves; that a profitable farm on a very large scale should enable a large number of students to support themselves by agriculture, and that workshops on a large scale, for the manufacture of some simple fabrics of universal consumption, should enable a large number of students to support themselves by mechanic arts; that in both these cases the main thing should be self supporting industry, and not educational industry.

The second theory is, that the primary object of the manual labor in both departments should be educational; that is, that the work should first of all be done with a view to perfecting the student in the best processes, and to make him scientifically and practically a first class agriculturist or mechanic.

My opinion is that the first of them is *desirable;* the second *essential.*

If possible, we must do both; in any case, we must do the second thing.

For the endowment was given by the United States, primarily not to aid ten, or twenty, or fifty young men to support themselves, but to enable hundreds of young men to obtain a thorough practical and scientific education, in order to develop the industrial resources of the nation.

Take first agriculture. Here I would combine the two aims; always, however, holding manual labor, which has an educational value, of more importance than that which has not.

I would, first of all, lay stress on first-rate farming, and first-rate farm construction. I would have a model farm and an experimental farm, and botanic gardens, and roads, and dykes, all carefully studied out and thought out; all as a part of a system of educational value, both while it is constructing, and after it is constructed. I would have students carry out scientific and economic principles in practical experiments on modes of culture likely to be practically beneficial to the State. That is the manual labor system which has a special educational value; its object is the best farming, and to make the best farming pay.

But while this is done, there will always be work at which a considerable number of students can, in many cases partially, and in some cases entirely, support themselves while pursuing their studies. When so large a body of students are assembled, as at the Cornell University, there is established at once a market for the products of a very large farm, employing a number of young men.

To do this work, we have organized voluntary labor corps, paying as nearly as possible what the young men earn; no more, no less, and it is found that a large number can thus secure healthful exercise, and at least partial support. I say *voluntary* labor corps, because the number of students is so great that all cannot be employed at hard labor, and because, the world over, *forced* labor is unprofitable labor.

To sum up regarding agriculture: It seems easy to co-ordinate the two aims; to carry on at the same time labor of educational value and of pecuniary value.

In mechanic arts, it is more difficult; here your market for the products of ordinary labor must be generally sought elsewhere, and it must be necessarily precarious.

For this department I would begin having in view *educational* manual labor. I would, to this end, begin with a workshop furnished with simple machines and tools for working in wood and metals, such as lathes, planers, drills, and the like, with a small steam engine as a motor. In this, under the direction of a professor, who should be not only a thorough scientific man, but a practical mechanic, I would have such students as have proved themselves fit for it make models, apparatus, implements, &c., in furtherance of their studies.

Say, for example, that the institution wishes models to illustrate descriptive geometry, or combinations of wheelwork, or different applications of steam, I would have students study the best designs, discuss them with their professors, make careful drawings, and then carry them out practically.

If, for example, the institution wishes a model of a low-pressure steam engine, I would have the student, a young man who having learned something of the trade elsewhere, now purposes to perfect himself, and make himself a master mechanic—I would have him study the best machine drawings of Armengaud, or other leading designers; then make as careful drawings, and as large, for his model as for a steamship engine; study the proper relations of parts as regards size and place; calculate closely the movement of valves; estimate power and work to be done, and then in this shop I would afford him facilities to construct the perfect model thus designed.

In this way, students would acquire at the same time the theory of machines, knowledge of the most approved construction, practice in drawing, judgment in adjustment of parts, skill in manual labor, and in many cases make a model which could be sold for enough to repay their time and labor.

The institution itself would be thus able to purchase of its students, for its cabinet, models of agricultural and mechanical construction cheaper than it could import them, and at the same time aid meritorious and needy students. Do you not see, my friends, that even a half dozen master mechanics and mechanical engineers every year thus taught, would be worth more to the State than a hundred *half* educated young men.

This is the first legitimate thing to do. After that, if some simple branch of mechanical labor could be found, which would enable a large number of young men to support themselves by more unskilled work, whether at the simplest forms of cabinet or tool making, or the like, that might be tried; but it never should be allowed to jeopardize funds designed for practical and scientific *education*.

It is a matter of congratulation that thus far our own institution has done something in both these directions.

During the first term, over three thousand dollars were expended in work done by students on buildings, grounds, and farm.

But the question is sometimes asked: Will not your "*voluntary* labor corps" create a spirit of caste? Will not those who do manual labor be looked down upon by those who do not?

They who ask this question show at once their practical ignorance of American students. In every American college of size, no matter what its faults, there is always this virtue: that idlers are regarded as the inferiors of workers. No purer democracies exist on the face of the earth than our great schools and colleges. It is an absolute fact that the real aristocracy at such institutions is an aristocracy of talent and of work; it is only when the young men have graduated that they accustom themselves to the opposite idea.

Whom do students at Yale, or Harvard, or the University of Michigan, or Cornell University most readily elect into their literary societies? The young men of talent and work. Every professor sees this, except perhaps, in some petty colleges, where city snobbery has eaten out right manly feeling.

President Thomas Hill, of Harvard, swept the College yard; Jared Sparks waited on the college table; the student who passed the best general examination at the recent close of the term at Cornell University, is a waiter in the University dining hall; some of those who stood highest at the recent examination for prizes in special departments, you can see any fine day at work on the university grounds with pick and shovel. I have seen, at a large eastern college, one of the wealthiest students, a poor scholar, and one of the poorest students who partially supported himself by labor in a harness shop, a good scholar, competitors for admittance to a very select literary club, and I have seen the harness maker elected unanimously, though the club was at that moment greatly in need of money. As student in an Eastern State, and Professor in a Western State, I have seen this manifestation of right feeling among students scores of times. There is no danger of caste from this source.

I am well aware, too, that it is denied by some that labor of the hands and head can be made to go together. It is said that attempts to accomplish this have failed. *Some* have failed; *all* have not. So far as it goes, the agricultural college of Michigan has succeeded. The experiment has never been tried, so far as I can find, fully and satisfactorily. It ought to be so tried, and will be in this State. There is probably no such inherent difficulty as certain theorists claim. The literature in this world and the sciences which have been most healthful, have, almost without exception, been born of workers and not of idlers, of men who took part in active affairs, not of men of elegant leisure.

But in fairness, in all this matter of a new education, its advocates have the right to ask of the world some patience and forbearance. The world is greatly afflicted, and this country more than any other, with men who clamor for fruit on the day the seed is planted. We must "learn to labor and to wait." We shall stumble; we shall blunder; we shall pick ourselves up; and again, doubtless, we shall stumble and blunder, but we shall succeed.

The existing systems of education have had over three hundred years for their perfection; the new system certainly then may ask for a decade of years.

Finally, in any great establishment for scientific and industrial education, it should be remembered that there are *indirect* purposes not less important than the direct.

While you are devising plans to make the student a first-class farmer or first-class mechanic, broaden your plans sufficiently to make him a first-class *man*.

You will not thereby make him any the less perfect as farmer or mechanic.

Let me here mention, in conclusion, two of these great indirect wants which should be kept in view in any large plan for instruction in agriculture and the mechanic arts.

First of these is the want of a due representation of the agriculturists and mechanics among the men of political power and influence. It is a want which every thinking man recognizes. It is one great cause why ambitious and energetic young men are constantly deserting the farmers' profession. They constantly see "tonguey" men taking positions of influence over substantial working men.

There is but one way to combat this, and that is to combine with special education in your departments of agriculture and mechanic arts good general education in history, in the fundamental principles of law, in the master-pieces of thought and expression, in our own language, and the like. Thus shall you make your master-farmer and master-mechanic a power not only on farm or in work-shop, but in the world; thus and thus only shall you give agriculture and mechanic arts their due representation in the politics of the country.

A second great evil to be met is the constant depletion of the farming districts of the greater part of their best men, and the overstocking therewith of the city populations. Every thoughtful man sees this and deplores it.

This is not so in England. There, the ambition of thriving men is to get out of city into country; here the ambition of thriving men is to get out of country into city. Why this difference?

I am convinced that the great reason is that in England all pains are taken to make the country beautiful; here it often seems as if all pains were taken to make the country hideous. Constantly we see among us, houses rising in the country at considerable cost—yet glaring, staring, ugly; commonplace boxes just like hundreds of other commonplace boxes; set without any care, surrounded without any beauty. Every one of them, a very little architectural knowledge or even a general appreciation of beauty, would have made delightful additions to the landscape, attractive to every man, a true social magnet to draw men from city to country. Infuse such a spirit into your country districts, and you shall discover a rich tide flowing back to them from the city — a tide bearing men of wealth and public spirit.

But you may preach on the duty of citizens to live in the country, you may picture the farmers' independence and security, until the crack of doom, and you will make no head against the evil, so long as country houses and country life are allowed to remain tasteless and repulsive.

To this end, your surest way is to cultivate in every young scientific farmer that love for the true, the beautiful and the good, which God has given him. Cultivate his feeling for art, and especially architecture, and he will work on your rural landscape to make it attractive. Cultivate his feeling for manly literature and he will work on rural society to make it attractive. Give the young farmer such general resources in himself that he will not be obliged to seek city amusements to satisfy his mental and æsthetic cravings.

To do this, equip your institutions where agriculture is studied, with means and men to give the student a well rounded, general education, suited to the needs of this land and time, as well as that sharp, special education suited to his profession.

Make your student a master farmer or master mechanic; but make him, also, a master man.

REPORT

OF WILLIAM H. CARMALT, M. D., COMMISSIONER FOR THE INVESTIGATION OF ABORTION IN COWS.

Mr. President and Gentlemen of the Society:

Immediately that notice was received, that this investigation was to be continued, the necessary steps were taken to prosecute the inquiry, in the manner demonstrated the most advisable by the experience gained last year, *i. e.*, by the appointment of properly qualified persons to inspect the farms or dairies considered desirable, and to obtain full reports thereof from the owners or occupants.

As it appeared from the examination then made, that farms were affected indiscriminately as regards location, and that no rule with reference to contiguity could be established; that one largely affected dairy might be surrounded on all sides by those perfectly healthy, or an unaffected dairy might lie in immediate proximity to several having the disease, in other respects, all apparently subject to the same influences; it was considered desirable that as many reports as possible, of the two classes of affected and non-affected farms, should be obtained; and in order to secure this with the least possible expense, as well as that the inspection should in all cases be complete for the district examined, it was determined to have every farm reported.

As it was further apparent from that report, as well as from information received from other sources, that Herkimer county was affected to a marked degree, and yet included a large number of farms reported as having escaped the disease entirely, it was considered a favorable district, in which to institute a series of comparisons between farms; and as it was further desirable to compare districts as well as farms, the towns of Hardwick and Barre, in Worcester county, Massachusetts, which had been partially inspected last year, were also included in the plan of operations.

The following gentlemen were appointed to make these inspections and reports, viz: Dr. R. F. Halsted, Inspector; and Drs. N. A. Lind-

ley, Benjamin R. Swan, and Daniel W. Kissam, Assistant Inspectors. The Inspector to receive a salary of one hundred and fifty (150) dollars per month; the Assistant Inspectors, one hundred (100) dollars per month, and both to have their necessary traveling expenses paid.

They were furnished with the accompanying blank form of report, marked "A," to be filled up with the replies furnished by each farmer. They received instructions as to the manner in which their inspections should be conducted, in all essential respects, similar to the circular letter of instructions issued last year (which will be found in the report of that year); and from time to time further directions were given to them, as circumstances seemed to render necessary.

All the farms in that part of Herkimer county lying south of the towns of Russia, Norway and Salisbury were inspected, and thus reported upon, and also the towns of Hardwick and Barre, in Massachusetts, as before mentioned.

In addition to the above general report of each farm, a botanical inspection of the town of Danube, in Herkimer county, was instituted, for the purpose of determining whether the introduction of a deleterious substance into the food of the cows, could be the cause of the trouble.

Mr. Coe F. Austin was appointed Botanical Inspector, and received a salary of one hundred and fifty (150) dollars per month, and his necessary traveling expenses were also paid. He received instructions as follows:

New York, *July 3d*, 1868.

Mr. C. F. Austin, *Inspector, &c.:*

Sir—You are hereby appointed an Inspector, for the New York State Agricultural Society, in the commission to investigate the subject of abortion in cows.

As soon as possible after the receipt of this, you will please proceed to the town of Danube, in Herkimer county, in this State, and make a thorough botanical inspection of the farms therein, from a list furnished you by Inspector Halsted, who is instructed to render you this, and such other assistance as you may, together, deem advisable for the interests of this investigation.

In your inspection, you will collect and preserve specimens of all plants found in the meadows, pastures, and among the grain of those farms; which specimens shall be the property of the Agricultural Society. You will record, at the time, the habitat, and the per centage of frequency, for each plant in pasture, meadow and grain field, for each farm.

You will examine for any disease of the plants, whether due to the presence of a parasitical growth of any kind, or other cause; and

when found, you will record the part of the plant affected; the habitat of the diseased as compared with the healthy plant; the per centage of disease; and, so far as you can learn from observation on the ground, the course and natural history of the disease. You are especially desired to make as careful observations and collections as possible, of all fungi upon plants—among which, ergot holds, in connection with this investigation, a peculiar importance.

Forward specimens of every diseased plant you obtain to the commisioner, at as early a date after collection as practicable.

As soon as possible after making your collections you will make out a proper classification of the specimens secured, with an account of their natural history and habits; making a complete botanical history of each farm separately.

No necessary expense is to be spared, in making your inspection as thorough as possible, so far as it may relate to the subject undergoing investigation. At the same time, you are relied upon to exercise a judicious economy in husbanding the resources of the Society, and to assist in this way the successful accomplishment of its work.

At the termination of each month of service, you will furnish to the commissioner a report of your operations for that month, together with an account of your expenses during the same period.

Very respectfully yours,

W. H. CARMALT, M. D.,
Commissioner.

Mr. Austin began his examination on July 8th, and, with the exception of a few days, continued in the field until September 18th, when he reported in person to the commissioner, to make up his reports. These consist of:

1*st.* A report, marked "B," of four hundred and forty-nine (449) plants, growing spontaneously in the town, giving for each its proper botanical classification and common name; its habitat, whether growing in meadows, pastures, grain-fields or woods; the estimated frequency of its occurrence; and the farms upon which each was actually found. Specimens of three hundred and sixty-six (366) of these were preserved, and afterwards carefully mounted and labelled, and, together with the reports "D" and "G," hereafter referred to, are placed in the Rooms of the Agricultural Society, for reference, and in the hope that this collection may serve as a nucleus for an herbarium of all the plants growing spontaneously in the State, should it, at any time hereafter, be considered desirable for the Society to possess such an one.*

* Two points of more especial interest, however, to a botanist, are the presence, in this collection, of a specimen of *Cynosurus cristatus*, or crested dog's-tail, heretofore undiscovered in this country; and of a new species of danthonia, viz; *danthonia compresea*, AUSTIN, never before described.

2*d.* A report, marked "D," of cultivated grain raised on each farm.

3*d.* A report, marked "E," of the grasses affected by ergot (*Claviceps purpurea*, Tulasne), giving the name of each farmer; the per centage of abortion on his farm, as reported by Inspector Halsted; the estimated per centage of frequency of the grass in the meadows; and the estimated per centage of frequency of disease on the plant. The latter has reference to the number of heads of grass affected, not to the total amount of ergot; for, while in one plant but one or two seeds may be ergotized, in another nearly all may be affected, so that a closer estimate than the above is, obviously, impossible; together with a report of the grasses unaffected by ergot, giving their estimated frequency of occurrence in the meadows, for each farm.

4*th.* A report, marked "G," on rust, as affecting the grasses growing spontaneously, giving the estimated per centage of the grass in the meadows, with the estimated per centage of frequency of diseased plants to each farm.

In addition to the above, a fifth report, marked "H," has been furnished by Mr. Jno. L. Russell, of Salem, Massachusetts, of the proper classification of a collection, by Mr. Austin, of several species of the more common parasitical growths on the plants found.

If the cause of this trouble is to be found in the *food* of the animals affected, the offending substance would, in all probability, it is considered, be found in some of the above reports, and would also be noted as occurring only, or in greater frequency, on those farms reported to have been to a considerable degree troubled by the disease.

In examining the report "B," of those plants collected or noted as growing spontaneously in the town, with regard to the reputed influence that any may have upon the animal system, quite a large number may be noted as having some reported medicinal qualities, but a very few can be said, to be liable to produce abortions; and none of these, without associated symptoms, to be remarked by the farmers; nor are these noted as occurring exclusively, or even in greater frequency, on the affected farms; but are recorded either indefinitely "on all farms," or on a few farms of both classes noted together.

The number of noxious plants that may be cut and gathered in, with the hay, is of course very much smaller in number, and are probably nearly all the same varieties that would be found in the pastures;

and yet, in the year 1867, out of the whole number of 1,758 abortions, in which the month of the year was noted, 1,571, or 89 per cent, occurred during the months of November, December, January, February and March, being those months during which the cows are stabled and fed principally on hay.

The report of 1867 shows, that the rule with regard to abortions is, that there are no marked symptoms on the part of the cow before the abortion occurs. There is no constitutional disturbance, other than should properly be referred to the fact of an approaching natural labor. There are no evidences of poisoning, either by substances irritating the alimentary canal, from which the uterus, by its proximity, may be stimulated to contraction, nor from any disturbance of the general system producing an abortion secondarily. The instances in which the cow is sick, before abortion (other than above noted), are too rare to be taken into consideration, in trying to find a cause for so extensive a malady; and all symptoms occurring after, are properly to be referred to the fact of the abortion, and not to anything beyond that.

Your commissioner is unable to find, in the lists presented, any plant in itself healthy, which there is a reasonable probability has been the cause of this disease, affecting, as it does, so large a number of farms.

The possibility that some plants may be *diseased*, or subject to parasitical growths, and in this condition be eaten by the cows, and cause abortion, engaged the attention of the commission; and the subject, it will be remembered, was embraced in the instructions issued to the botanical inspector. So far as practicable, specimens of plants so affected were collected, and were afterwards placed in the hands of Mr. Charles James Sprague, of Boston, for examination, who conferred with Mr. John L. Russell, of Salem, upon their proper classification. These gentlemen are the most competent authorities in the Northern United States, on this subject; and where desirable, extracts are taken from Mr. Sprague's reports and letters to the commissioner.

It was impossible for the collector to have made a complete collection of all the different fungi affecting the plants, and at the same time to have made a complete botanical examination of the district assigned him, in any one season; for, to quote Mr. Sprague: "There is scarcely a phanerogamous plant, which is not more or less infested. * * * The genera *Uredo*, *Æcidium*, *Puccinium*, and others, are found everywhere upon almost everything. * * * Cows could

not graze where these fungi do not abound. I presume * * * that there are at least two thousand distinct parasitic fungi on New England vegetation. The peculiar species which attack grasses are limited; but if the animals should have access to woods, glades, undergrowths, &c., they would be exposed to the effects * * * of eating hundreds of different so-called species of fungi. Many of these * * * are minute microscopic species. * * * It would be almost impossible to trace the effect of these parasites on animals eating them, because an immense quantity would be requisite to cause any effect, and the cattle would eat scores of species with every mouthful picked up."

Of the fungi affecting grasses, the one of most evident primary practical value in this investigation is ergot (*Claviceps purpurea*, Tul.); first, by reason of its known influence upon the pregnant uterus; and secondly, because it is probably eaten in largest quantity with the hay, at the time when abortions prevail with greatest frequency; *i. e.*, during the winter.

By reference to the report on ergot, marked "E," it is seen that this fungus was found on ten (10) different plants, of which six (6) are among the more frequent meadow or pasture grasses, and it also shows the estimated per centage of frequency for each farm, of each grass, and the estimated per centage therein of diseased plants. By adding the grasses contained in this table, with those unaffected by ergot (in the same table), a tolerably fair estimate may be formed of the amount and proportion of this substance in the hay fed to the cows; and noting the per centage of abortion, on each farm, will show if those farms having the greatest amount of ergot are also those affected by abortions; or if those having no abortions, are also comparatively free from ergot.

Your commissioner is unable to trace any such definite relation as there recorded, though, as the record of abortions is for the year ending April 1st, 1868, and the botanical inspection was made during the summer of 1868, the record of abortions does not cover the ergot reported. It will be necessary to know the history of the disease next year, before a positive conclusion can be arrived at on this point, though the quantity of ergot reported on *any* farm this year, is so small that it is highly improbable that it should exert any such very general influence, as the history of this disease shows it must do, if it is to be considered the principal cause of the trouble; and more so, in view of the established rule, that the ruminata require a propor-

tionately greater quantity of almost every substance, if introduced into their stomachs, than the monogastric, before a similar effect is produced on the rest of the system. Well authenticated observation shows, further, that the continued administration of ergot, in considerable quantity, is not infrequently followed by gangrene and paralysis of the extremities, or other evidences of serious poisoning. It would seem not improbable, that as usually no material change is made in the food of the cows during the winter, but that the ergot, if administered at all, is continued to be taken to the same extent until the cows are turned out to pasture, that if enough was taken to produce any considerable number of the abortions reported, that out of the 75,000 cows, and reported 4,350 abortions, passing under the notice of the inspectors of the Society, during the last two years, some one instance of this kind of trouble would have occurred, and if occurred, surely reported; but the records of the commission are without an instance.

But a small amount of grain is raised in Danube, proportionately to the dairy products. One (1), farm reported raising rye; three (3), raised buckwheat; three (3), corn; seven (7), wheat; fifty-four (54), oats, and thirteen (13), barley, though this list must not be understood to be complete. Partly the limited time at the disposal of the inspector, in which to make an examination of the whole town, and to a certain extent an inability on his part to understand his instructions, whether verbal or written, prevented so full a report on this subject as was designed; but so far as reported, and compared with the general report of the town, by Dr. R. F. Halsted, it is as follows, viz:

The point of importance being still the food of the cows; of one hundred and four (104), farms inspected in the town, forty (40), raised the grain from which the ground feed given to the cows was made; and sixty-four did not raise it; of the sixty-four, on eight, the ground feed was purchased, either from mills or stores in the neighborhood, beyond which it could not be definitely traced, and of these, five, or sixty-two per cent had abortions upon them; and on the other fifty-six, no ground feed or grain at all was given, and nine, or sixteen per cent had abortions upon them. Of the remaining forty, fourteen, or thirty-six per cent had abortions upon them, and of the fourteen, five were reported not to raise oats, and eleven were reported not to raise barley. The nine raising oats had "smut" (*Ustilago segetum*), to a very limited amount, a "trace" on all, and "rust" (*Puccinia*

graminis), in variable proportion, from fifty per cent to a "trace" on all; while of the twenty-six on which no abortions occurred, fourteen were reported not to raise oats, and twenty-two were reported not to raise barley, leaving twelve raising oats, and four raising barley to feed the cows, out of which ten were affected by both rust and smut. While it is, therefore, apparent that abortions prevail to a greater extent, upon those farms where ground feed is given than upon those where it is not, the number upon which it is given is too small to base an opinion upon, were not the occurrence of these parasites so nearly uniform on both classes of affected and non-affected farms, as to justify the expression that they cannot be a probable cause of this disease there.

It would seem, then, that the substances used for food by the cattle, in this town, have been sufficiently well examined to have found anything therein, that could be considered to cause so general a trouble. The pastures, woods and cultivated fields, after the grain had been cut, and the meadows, after the hay was harvested, have been gone over without finding sufficient therein to account for the trouble during the summer months, while the cows were grazing; and the standing hay and grain have been examined to determine if the offending substance could be found there, to account for the great amount of disease during the winter, but each equally without success.

The principal phenomena of this disease are sufficiently distinct, to warrant the exclusion of a substance that would cause the disease secondarily, and the only one having a direct action on the pregnant uterus, *i e.*, ergot (though as yet its want of influence must be considered not absolutely settled), was found in too small quantity to be considered a probable cause of so wide spread an affection; and we are forced to a negative conclusion in endeavoring to account for the disease by reason of the introduction of a deleterious substance in the food.

The general inspection closed December 4th, 1868; the following is a summary of the towns inspected, the whole number of farms in each, the number of affected farms in each, and the per centage of affected farms:

IN HERKIMER COUNTY, NEW YORK.

TOWNS.	Whole number of farms inspected.	Number of affected farms.	Per cent of affected farms.
Newport	105	63	60
Fairfield	97	70	72
German Flats	120	26	22
Herkimer	103	33	32
Little Falls	89	38	43
Frankfort	102	20	20
Litchfield	131	41	31
Winfield	84	26	31
Schuyler	107	33	31
Danube	104	28	27
Manheim	91	32	35
Stark	89	17	19
Warren	119	16	13
Columbia	128	21	16
	1,469	464	33
IN WORCESTER COUNTY, MASSACHUSETTS.			
Hardwick	105	24	23
Barre	119	8	7
	1,693	496	29

Showing that Fairfield has the largest per centage of affected farms, viz: 72; and Barre the lowest, viz: 7; or in Herkimer county alone, Warren has the lowest, viz: 13.

These towns report cows in calf, and abortions, respectively, as follows:

TOWNS.	Total number of cows in calf.	Number of abortions.	Per cent of abortions.
Newport	2,895	361	.124
Fairfield	3,397	324	.095
German Flats	1,790	133	.074
Herkimer	2,582	166	.064
Little Falls	2,703	164	.06
Frankfort	1,299	71	.054
Litchfield	2,384	113	.047
Winfield	1,756	84	.047
Schuyler	2,236	100	.044
Danube	2,363	102	.043
Manheim	3,347	132	.039
Stark	1,711	68	.039
Warren	2,032	78	.038
Columbia	1,861	45	.024
	32,356	1,941	.06
Hardwick	1,240	105	.084
Barre	1,323	11	.0083
Total	35,919	2,057	.057

The results of the above table are further shown in the map at the end of this report, marked "X," in which those towns, having less than 4 per cent of abortions, are in white; those having from 4 to 6 per cent (both inclusive), are in gray; and those having over 6 per cent (being the average for the county), are in black.

Comparing the actual frequency of abortions, with the number of affected farms in the different towns, it is seen that the relation is not positive:

Towns.	Per cent of abortions.	Per cent of affected farms.
Newport	.124	.60
Fairfield	.095	.72
German Flats	.074	.22
Herkimer	.064	.32
Little Falls	.06	.43
Frankfort	.054	.20
Litchfield	.047	.31
Winfield	.047	.31
Schuyler	.044	.31
Danube	.043	.27
Manheim	.039	.35
Stark	.039	.19
Warren	.038	.13
Columbia	.024	.17
Average Herkimer county	.06	.32
Hardwick	.084	.23
Barre	.0083	.07

The irregularity which may be said to be one of the most marked characteristics of this disease, and which has so often interfered with the determination of its probable cause, is well shown in the above table, for while the highest and lowest hold about the same relation to each other, in both columns, in no other part can any constant rule be established; as, for instance, Frankfort, which is sixth in the order of abortions, is eleventh as regards frequency of affected farms; and Manheim, which is eleventh in the order of abortions, is fourth in the order of affected farms; while Warren, having but one-tenth of one per cent less abortions than Manheim, is fourteenth or lowest in the order of affected farms. So that a high per centage in a town may be brought about either by a few farms being largely affected, or by a large number of farms, each having comparatively a slight loss. Thus Fairfield, having but two per cent more abortions than German Flats, has a little more than three times the per centage of affected farms, the loss in the latter town being brought up by farms having

suffered heavily, viz: Ninety-four per cent, eighty-two per cent, and sixty-one per cent for each of three farms; ninety-four per cent being, proportionately, the heaviest loss reported in the county, occurring in a dairy of nineteen cows.

The disease affects farms lying near each other, very irregularly, also, as regards their comparative per centage of abortions, though a tendency may be said to exist towards a concentration of affected farms to a vicinity. This is further shown, in the diagram at the end of this report, marked "Z," of all the farms inspected in Herkimer county, with the per centage of abortions of each, represented as follows: Those having five per cent or less being in green; those between five and ten per cent in red; those from ten to twenty-five per cent in yellow, and those over twenty-five per cent in blue; the non-affected being in white.

Of the 464 farms affected by the disease, 120 had five per cent or less of the disease upon them; 126 had from five to ten per cent; 134 had from ten to twenty-five per cent, and 84 had over twenty-five per cent; about one-half having less than ten per cent.

To determine the relation between the size of the herd, and the liability to be affected by the disease, the following table is presented, showing the per centage of abortions, the average size of all the herds, and the average size of the affected herds, and the average size of the non-affected herds for each town:

Towns.	Per cent of abortions.	Average number in each herd.	Average number in affected herds.	Average number in non-affected herds.
Newport	.124	27	30	23
Fairfield	.095	36	38	26
German Flats	.074	15	20	13
Herkimer	.064	25	33	21
Little Falls	.06	30	35	27
Frankfort	.054	13	20	11
Litchfield	.047	18	22	16
Winfield	.047	21	23	20
Schuyler	.044	21	29	17
Danube	.043	22.7	22.5	22.7
Manheim	.039	37	42	34
Stark	.039	19	19	19
Warren	.038	17	21	16
Columbia	.024	14	17	13
	.06	22	29	19
Hardwick	.084	13	17	10
Barre	.0083	11	17	11

This table shows, then, that the size of the herd has no constant relation to the per centage of abortions for the towns, for Manheim, which averages the highest number of cows per herd, stands eleventh in order of frequency of abortions; and Frankfort, whose dairies average thirteen cows, being the lowest average in Herkimer county, is the fifth in the order of abortions. Fairfield holds the same position with regard to number of cows and frequency of abortions, being in each instance the second, while Newport, whose rate of abortion ranks highest, stands fourth in the order of number of cows per farm.

But it shows further, that the average number of cows on affected farms in a town, is always larger than on those non-affected (with the single exception of the town of Danube, where the non-affected herds average one-fifth of a cow more than those affected); so that, while the size of the herds has no relation to the per centage of abortions in the towns, the tendency of the disease is to affect the larger dairies in a given district.

The number of farms inspected in 1867, in these towns of Herkimer county, was 597, of which 200, or about thirty-three per cent, were then affected. This year, of the 1,469 farms reported, 464, or thirty-one and one-half per cent, were affected. This slight difference in favor of 1868, may be accounted for by re-calling the fact that last year the inspections were confined to those farms containing fifteen or more cows, with the addition of all others containing less than fifteen upon which abortions had occurred that year. *This year every farm having cows upon it has been reported, and it may be considered to show the actual amount of disease in whatever district is referred to*, and will account for the greater per centage of affected farms in 1867.

Comparing the reports of 1867 with the records here given, the per centages of the towns for the two years are as follows, viz:

Towns.	1868.	1867.	Towns.	1868.	1867.
Newport	.124	.09	Winfield	.047	.024
Fairfield	.095	.11	Schuyler	.044	not rep.
German Flats	.074	.047	Danube	.043	.054
Herkimer	.064	.048	Manheim	.039	.056
Little Falls	.06	.078	Stark	.039	.025
Frankfort	.054	not rep.	Warren	.038	.019
Litchfield	.047	.06	Columbia	.024	.018
Total for Herkimer county				.06	.055

Comparing this table with the statement just presented, of the total per centage of affected farms during the last two years, it will be seen that while the per centage of affected farms was greater last year, that this year the total per centage of actual abortions is the greater, showing that the disease has actually increased in frequency.

Attention is further directed to the circumstance, that while the total per centage for the county does not vary materially as between the two years, still, with the exceptions of the extremes of two highest and two lowest, considerable differences exist in the towns with regard to their per centages in the different years. Thus German Flats, which is in 1868 the third in rate of actual disease, was in 1867 the eighth; and Manheim, which was then the fifth, is now the ninth, not counting the two towns of Frankfort and Schuyler, not reported in 1867, and reference to the map "Y," hereto appended, of the results of the inspection in 1867 will show, at a glance, in what towns these differences occurred.

This uncertainty as to the recurrence of the disease may be further illustrated, as regards farms, by comparing the results of the inspection of 1867 of seventy-one farms in the town of Little Falls, and of the inspection of the same farms in 1868. Of these seventy-one farms, thirty-one escaped the disease in both years; twenty-three had the disease both years; eight had the disease in 1867 and escaped in 1868, and nine, which were unaffected in 1867, had the disease in 1868. The comparison shows, further, that the per centage of disease in one year bears no positive relation to the per centage the following year; for the eight which had the disease in 1867, and escaped in 1868, were affected variously, from two per cent to twenty-five per cent; and the nine which had no disease in 1867, were, in 1868, affected in different amounts, ranging between three per cent and forty-one per cent.

This uncertain feature is, however, as regards either towns or farms within certain limits, and the proportion of instances in which the disease returns, may be determined with tolerable exactness, as follows: Of the 383 farms reporting abortions in 1867, 280, or seventy-three per cent, had abortions on them again in 1868; of the 899 farms reporting no abortions in 1867, 180, or twenty per cent, had abortions on them in 1868; *or the disease is about three and a half times as likely to recur upon an affected farm as it is to appear upon a previously non-affected farm.*

With regard to the period of pregnancy, at which abortions occur, it is reported as follows:

In the first month	0
In the second month	1
In the third month	10
In the fourth month	66
In the fifth month	106
In the sixth month	198
In the seventh month	341
In the eighth month	360
In the ninth month	238
Total	1,320

This report agrees with the report of 1867, except that a larger proportion were then reported occurring during the sixth month, and a smaller proportion towards the ninth month than seems to be the case this year. They agree, however, in the important point, that as pregnancy advances the abortions occur with greater frequency, up to the time when much uncertainty must prevail whether the full term of pregnancy has expired or not.

The month of the year, during which abortions occur, can be determined with tolerable precision as follows:

In the month of April	86
In the month of May	27
In the month of June	2
In the month of July	2
In the month of August	1
In the month of September	18
In the month of October	40
In the month of November	115
In the month of December	215
In the month of January	354
In the month of February	426
In the month of March	358
Total	1,644

Of these 1,644 cases, it will be noticed that 1,468, or eighty-nine per cent, occurred during the five winter months of November, December, January, February and March; during which the cows are kept up, precisely the same per centage as a similar comparison showed to be the case last year. The marked decrease of abortions during April, while a large number are still stabled, is probably owing to the circumstance, that by that time, a large number of the cows have arrived at their full period of gestation, and have calved at term.

The question of the influence exerted by the age of the bulls used for service, engaged the attention of the commission last year, but it seemed desirable to include it in the reports for this year, and the following results were obtained :

NUMBER OF COWS IMPREGNATED BY	Bull aged 1 year.	Bull aged 2 years.	Bull aged 3 years or over.
That carried calf to full term	9,740	19,530	1,482
That aborted	522	1,340	74
	10,262	20,870	1,566
Per cent of abortions	.05	.064	.047

Showing a slight influence in favor of the use of aged bulls over both the younger classes, but also an influence in favor of yearling bulls over those two years old; so that it cannot be claimed from this, that it is the age alone, which exerts the favorable influence for the aged bulls.

This same question of the age of the bulls, was also referred to the classes of affected and non-affected farms, with the view of the bearing upon the nutrition of the fœtus, from excessive use of the bull; and as many bulls are allowed to serve other cows than those on the farms on which they are kept, care was taken to ascertain the full number of cows served :

ON THE AFFECTED FARMS.	ON THE NON-AFFECTED FARMS.
One year old bulls served 23 cows each.	One year old bulls served 20 cows each.
Two do do 35 do	Two do do 31 do
Three do do 37 do	Three do do 41 do

It may be seen from this list, that while there does not appear to be any excessive strain upon the generative powers of the bulls, at the different ages, yet in the case of the yearlings, and two years old bulls, more cows are, on the average, served on the affected than on the non-affected farms, while in the case of the three years old bulls, the contrary average exists. That this is owing to the habit of using the older bulls for service outside the farms upon which they are kept, is shown if the cows upon the same farms only are taken into the calculation; in both instances, of affected and non-affected farms, the average number served by aged bulls is but eighteen.

This question of the age of the bull may be considered further; and although the reports at the service of the commission, do not show any very marked influence in favor of the aged bulls, so far as directly affecting the immediate subject under investigation goes, yet a secondary influence is not unlikely to be exerted that must be of interest, and the attention of the Society is directed to the very limited number of aged bulls used, for out of 1,213 bulls used this year, in that part of Herkimer county inspected, but thirty-two were over two years old, while in Barre, where the per centage of abortions is but four-fifths of one per cent, of eighty-six bulls used, twenty-eight were over that age. The habit of breeding from immature bulls cannot be too strongly objected to, if we may be allowed to be governed by the experience of those who breed to improve the general constitution of their stock, or by the rule which exists among wild animals, by which the young males are kept from service by the older ones, until they arrive at sufficient maturity and vigor to assert their equality and consequent right to perpetuate their kind; and, while we cannot say that the fœtus gotten by a young bull will not live to be delivered, still, the delicate constitution thus liable to be produced, will, if a heifer, and permitted to live and breed, be likely to fail when called upon to go through with the drain, hereafter to be further referred to, in breeding at two years old, and in immediately afterwards being compelled to give an excessive amount of milk.

The principal idea of the farmers, from whom the commission has this year received reports, with regard to the use of their cows, is to get as much milk as possible therefrom with as little outlay as can be got along with, and therefore a bull is rather a necessary evil than otherwise; and as the smaller the animal is the less it will cost to keep, so, if a bull will but get a cow with calf, his destiny is accomplished, and the calf is killed as soon after birth as the stomach will do for rennet—that must be saved—for the records of last year show, that 14,000 out of 17,000 calves born alive at full term, were killed within a few days after birth.

The milking qualities of the dam was intended to be considered, but owing to a typographical error in the blanks, the distinction between good and ordinary milkers was not in all cases obtained; so far, however, as reported, it appears that of 6,464 good milkers in calf, 390, or .06 per cent, aborted; that of 4,954 ordinary milkers in calf, 248, or .05 per cent, aborted; but as the total per centage ot abortions among cows, as distinguished from heifers, is reported here-

after at .059 per cent, neither of these classes differs sufficiently from the latter to suggest a probability even that the milking qualities, *per se*, have any marked influence.

The commission would have been pleased to have given more information on this point, but the full report of 1867, and the partial one of this year, substantially agree, neither showing any marked difference in disease between the two classes of milkers.

The point of interest in this classification, however, being that of over-taxing or exciting irritability in the generative organs of the dam, in hereafter bringing to the attention of the Society the question of the total product of the cow, the most essential point in this connection is not lost; for it is not to be assumed that because one cow naturally gives a larger quantity of milk than another, that she will be the one to abort when exceeding an arbitrary standard, and so far as collected, the reports do not point to any difference. An ordinary milker, who is milked during the later months of pregnancy to make her pay as much for her care as a good milker, is likely to suffer more from the drain, and experience more irritation in her generative organs (of which the mammary gland is an important part) than a cow which, naturally, gives a larger quantity.

Are first pregnancies more or less liable to abortion?

Number of cows in calf (excluding first pregnancies).....	30,971
Number of cows in calf that aborted.....	1,840
Per cent.....	.059

Number of first pregnancies	3,175
Number of first pregnancies that aborted.....	182
Per cent.....	.056

This difference is too slight to lead to any other conclusion than that the same liability to abortion pertains in a first pregnancy, that exists in later ones.

Are cows which have aborted, more likely to abort the year following, than those which have carried their calves to full term?

Of 29,649 cows which carried calf to full term in 1867, 1,698, or .058 per cent, aborted in 1868; of 987 which aborted in 1867, 121, or .12 per cent, aborted in 1868, showing that a cow which has aborted, is twice as liable to abort the following year, as one which has previously carried her calf to full term.

It has been suggested that subjecting cows to changes from farm to farm, might have a prejudicial effect against carrying calf to full term. With a view of determining this, the following table is presented:

Of the Cows	That carried calf to full term.	That aborted.	Per cent of abortions.
Raised on the farm, including those brought on as unimpregnated heifers.....	11,730	551	.046
Brought on at any time during or since their first pregnancy.....	19,961	1,380	.07

Showing a decided influence in favor of raising the cows rather than buying them, as is so frequently done, indiscriminately about the country or from droves.

For a further illustration of this point, the actual condition, whether pregnant or not pregnant, at the time of removal, was made the subject of inquiry, with the following result:

Of all the Cows Brought on During the Past Year.	That carried calf to full term.	That aborted.	Per cent of abortions.
Number pregnant at time of removal	2,322	203	.087
Number not pregnant at time of removal..	1,031	24	.02

Showing a very decided objection to subjecting cows to removal during pregnancy, whether compared with all removals, or even with those removals taking place during the non-pregnant condition only. That this would be expected, owing to the greater liability to accident, and from fighting with other cows, is very evident; *but it must be taken into consideration, when providing means to prevent the occurrence of the disease*, and shows the advantage of raising cows on the farm, or subjecting them to change only during the non-pregnant condition.

It has been shown that cows are not more liable to abort during first pregnancies; but whether the effect of early breeding is prejudicial to carrying calf to full term in subsequent pregnancies, is yet to be considered. For the investigation of this point the inspectors were desired to get the age at which the cows raised upon the farms (or brought on as unimpregnated heifers) first calved; *being those only, which the farmer could state had been under his own observation*

and care since, before their first impregnation. The reports are contained in the following table:

OF ALL THE COWS RAISED ON THE FARMS.	That carried calf to full term.	That aborted.	Per cent of abortions.
No. that first calved at under 3 years of age	9,129	462	.05
No. that first calved at 3 years of age or over	1,902	66	.03

Showing a greater tendency towards abortion, among cows which began breeding at under three years of age, and giving confirmation to what has been said, when referring to the influence of using immature bulls, viz: *That immature stock should not be used for breeding purposes.*

In the further consideration, of whether this practice is more prevalent on affected or on non-affected farms, the reports of Herkimer county show as follows, viz:

Cows.	Affected farms.	Non-affected farms.
Whole number of cows raised	3,372	7,047
Number that first calved under 3 years of age	2,869	5,865
Per cent	.85	.83

While, therefore, the reports on this point do not show any marked difference, to account for the prevalence of the disease on the affected farms, they do show a very uniformly general practice in Herkimer county, of breeding at a very early age, and if the comparison is extended to the town of Barre, in Massachusetts, where the abortions are but four-fifths of one per cent, it is seen, that the per centage of cows first calving at under three years, is but seventy-seven per cent on the affected farms, and seventy-two per cent on the non-affected farms.

Leaving this point for the present, and taking the question of the total product of the cows, which bears a very close connection to this, the first consideration is: How much milk do the cows give? and second, does the amount influence gestation?

For the examination of this the inspectors were requested to report for each farm, the average number of pounds of butter and cheese made, and the number of gallons of milk sold. These were reduced to pounds of milk, by multiplying the number of pounds of cheese by

ten (10), the pounds of butter by twenty-five (25), and the gallons of milk by eight (8). These figures may not represent exactly the actual quantity of milk produced, but as in all the calculations hereafter made, these same factors are used, they will be reliable for purposes of comparison.

The census tables for the State of New York, taken in 1865, report the average yield of milk, per cow, for the whole State, to be 2,571 pounds. The following list, taken from the same source, shows the average number of pounds of milk, per cow, from the returns of 133 cheese factories, for eighteen counties, being all those reported:

Counties.	Number of factories reported.	Number of cows.	Average lbs. of milk per cow.
Cattaraugus *	1	670	1,780
Chautauqua	4	1,853	2,643
Chenango	10	4,520	2,743
Cortland	5	3,250	2,808
Erie	2	1,385	2,586
Essex *	1	1,100	2,408
Herkimer	5	2,383	3,408
Jefferson	15	7,413	2,545
Lewis	16	8,877	2,795
Madison	12	6,700	3,091
Montgomery	4	1,615	2,940
Oneida	35	17,358	2,890
Onondaga *	1	400	3,329
Oswego	11	4,550	2,421
Otsego	5	2,180	2,956
St. Lawrence *	1	375	2,953
Tompkins *	1	900	3,190
Wyoming	4	1,855	2,361
Summary of 18 counties	133	65,384	2,802
* Five counties represented by	1 each.	3,445	2,662

The reports to this commission, represent the total average quantity of milk obtained from the non-affected farms in Herkimer county, reporting 11,908 cows, at 4,386 pounds per cow.

The table for the cheese factories shows, it is understood, only the actual quantity brought to the factories, while the instructions to the inspectors, as also to the enumerators of the census, were in all cases to get the whole yield. The importance of as near an approach to perfect accuracy as possible, was insisted upon to the officers of the commission, and additional certainty secured by reference, whenever desirable, to the records of cheese factories, to which the milk was taken. It is decidedly the opinion of your commissioner, from a

careful examination of the separate reports, that the amounts given by the inspectors are a very near approximation to the actual yield, *and yet they demonstrate an average excess of* 1,815 *pounds more milk, per cow, than the statistics of the whole State determine should be the yield.* Additional evidence, to the effect that the farmers of Herkimer county are demanding a greater than the usual yield, is shown by reference to the above table of cheese factory products, which indicates an excess of 600 pounds of milk more, per cow, from Herkimer county than the average of the other counties, in the same table. It would hardly seem necessary to state, that a drain upon an animal of this amount, and nature, must exert an injurious influence upon the reproductive apparatus, *of which the mammary gland is an important part*, were it not that the habit is of such general frequency that it demands further reference, to be given hereafter.

The effect of abortions upon the supply of milk, may be seen as follows, viz.: Of 1,651 cows who had borne calf previously, and whose yield would therefore be known, 276 failed to give any milk after aborting; 278 were reported as unaffected in their yield; and of the remaining 1,097, in which a diminution in quantity was reported, 676 averaged a loss of fifty per cent, which may safely be assumed as the loss of the remaining 421, and the whole to be equal to the total loss of the yield of 822 cows. The difference in yield of milk on affected and non-affected farms is as follows (for Herkimer county): The former reporting an average yield of 3,994 pounds per cow, the latter 4,386 pounds per cow; and if it is considered that the latter might be the yield were it not for the abortions, the loss experienced may be stated at 822 times 4,386, which is equal to 3,565, 292 pounds of milk, or 356,529 pounds of cheese in this part of Herkimer county, excluding the loss from heifers not counted. The difference in yield of milk between affected and non-affected farms that has been shown in Herkimer county, exists also in Hardwick, where the average yield on the affected farms is 4,260 pounds per cow, and on the non-affected farms it is 4,602 pounds per cow; but in Barre the per centage of abortions being but four-fifths of one per cent, the difference is the other way; for the yield on the affected farms is 5,336 pounds per cow for 163 cows, and on the non-affected it is 4,643 pounds per cow for 953 cows. Now, in Barre, the number of aborting cows is but eleven on ten farms, which would be too slight a loss to affect the average per cow; and it is worthy of especial note that the first appearance of the disease here should be upon farms where the yield

reported is so unusually large, and affords additional evidence to the opinion before expressed, *that an excessive drain upon the milking capacity of a pregnant cow is injurious to the healthful performance of the reproductive process.*

To determine the changes that take place in the internal organs of a cow, at the time of aborting, Inspector R. F. Halsted, M. D., was instructed to procure and make a careful post mortem examination of one within twenty-four hours after abortion had occurred. He was directed to select an uncomplicated case, so far as could be determined, but to observe carefully for any evidence of disease in any organs, especially the uterus and its appendages, and to forward specimens of the muscular coat of the uterus, of the cotyledons, (both fœtal and maternal), of the kidneys, liver, voluntary muscles, and of the blood, bile and urine, to the commissioner without delay. Dr. Halsted made such an autopsy, on a cow belonging to Mr. James Blood, of Herkimer, and forwarded the following report:

Herkimer, N. Y., *November 28th*, 1868.

Dr. W. H. Carmalt, *Commissioner, &c.:*

Doctor—I have the honor to report, that I have this day made a post mortem examination of a cow that had aborted about twenty-four hours previously. So far as I could learn or judge, the case was without complication. I found no trace of disease, or even temporary disturbance in any part except in the uterus, and there nothing except the disorganization of the cotyledons, of which the specimens sent you will give you a fair idea. This case differs from the one I examined last winter, only in this disorganization having reached a more advanced stage. The placenta was expelled only a short time before the cow was killed. Of the calf I know very little. It had been thrown with the manure into the barnyard, and was not in fit condition to form any judgment upon.

Very respectfully, your obedient servant.

R. F. HALSTED, M. D.,
Inspector N. Y. S. Agricultural Society.

Dr. Halsted authorizes the further statement, that the fœtus was about four and a half months of age.

The specimens forwarded were received in good order on the day following the autopsy, forty-eight hours after the abortion occurred, and were immediately placed in the hands of Prof. John C. Dalton, for microscopical examination, who furnished the following report:

New York, *November 29th*, 1868.

Dr. Wm. H. Carmalt:

Dear Sir—I received from you, to-day, for microscopic examination, specimens of the blood, bile and urine of a cow killed after abor-

tion, together with portions of the liver, kidney, muscular tissue, mucous membrane of the uterus, and maternal and fœtal portions of the cotyledons. I have accordingly made the examination, with the following results:

The *blood globules* were natural in size, form and other physical qualities. The blood contained no abnormal ingredients visible by the microscope.

The *bile* was perfectly clear, showing no microscopic forms whatever.

The *urine* was very nearly clear. Its scanty deposit contained only a few shreds of epithelium and mucus from the urinary bladder.

In the *liver* the glandular cells were of natural size, well defined, granular, and without any unnatural deposit of fat.

The *kidney* was examined both in its cortical and medullary portions. The uriniferous tubules, blood vessels, and malpighian bodies were natural in appearance.

The *mucous membrane of the uterus* exhibited upon its surface columnar epithelium cells, and many detached nuclei. There was nothing abnormal seen in its structure.

The *fœtal portion of the cotyledons* was well injected with blood in its deeper parts, but pallid, very soft, and of a light opaque yellowish color on the surface. The cells of the fœtal tufts were very granular, and showed an abundant deposit of minute fat globules.

The *maternal portion of the cotyledons* was more uniformly filled with blood, and in one spot very strongly injected; but its tissue, nevertheless, showed distinct evidence of fatty degeneration, similar to that of the fœtal portion, and even more abundant. Otherwise the cotyledons were natural.

In every instance, I examined thoroughly for any appearance of *cryptogamous spores*, or other form of microscopic vegetation, but without discovering them in either of the specimens.

Yours, very respectfully,
J. C. DALTON.

There is, then, no evidence of any active disease in operation on the part of the dam, as shown by the careful post mortem and microscopical examination of every organ in the body having a probable influence to produce this disease.

What is the evidence of disease on the part of the fœtus? Of 4,163 abortions reported in 1867 and 1868, in 3,597, or eighty-six per cent, the fœtus was reported dead, or diseased looking.

There have been but few opportunities offered to the inspectors, in which to make actual examinations of the fœtus as expelled, but their limited investigations, and the general observations of farmers, unite in describing nothing inflammatory, or otherwise abnormal in the external appearance of the fœtus;—but it is usually dead.

The microscopical report by Dr. Dalton states that there was

evidence of an abundant fatty degeneration of both fœtal and maternal cotyledons, but that they were otherwise natural. As a fatty degeneration is the natural change occurring in the placenta, after cessation of the circulation, the inference is plain that circulation had stopped before the abortion took place;—for the changes noted could not have occurred in the twenty-four hours between the abortion and the time the autopsy was made, but they had probably been going on for some days previously.

If the fact be established, that the uterus and its appendages, and the fœtus and its products, are both healthy, the natural changes incident to a stoppage of circulation being all that occurs, an important point is arrived at. And aside from the absence of any traces of pre-existing disease, to be detected by the microscope, symptoms are wanting on the part of the cow to point to anything other than an approaching labor, the evidences of which are, perhaps unusually marked.

The introduction of a deleterious substance into the food, to affect so large a number of cows, with such uniformity of action, over a large extent of country, besides being in the first place improbable, in the second place has been investigated sufficiently to show that no article, or even variety of articles, occur having properties that would produce these extensive effects.

The existence of microscopic vegetations, or animalculi, in the tissues of the cow, has been disproved by the microscopical examination by Dr. Dalton of almost every solid organ, and of all the important fluids.

It is very difficult, and in this investigation unnecessary, to draw an absolute line between forces operating upon bodies so intimately applied, as the fœtus and its dam; or to say that in one case the fœtus is primarily affected, and in the other it is the dam. In either case, after the death of the fœtus occurred, the changes referred to in the microscopical examination would follow, and by the amount of fatty degeneration, an estimate may be formed, as to whether the fœtus has been dead for some time or not.

The microscopical examinations in the cases examined each year, indicate that this fatty degeneration had progressed sufficiently, to warrant the belief that the fœtus had been dead some days.

To what source, then, must we look for the causes to produce the death of the fœtus-in-utero, after excluding those already referred to? It plainly cannot be external violence in all the cases over so wide an extent of country.

is it mal-nutrition, the blood of the dam or sire being impure:—The evidence is all to the contrary; the cows are well nourished, so far as can be judged from external appearances by persons accustomed to this method of examination, and those skilled in pathological investigation agree that there are no pre-existing abnormal appearances in the internal organs. The bulls are healthy, with the exception of a few instances in which the trouble is entirely local; and as has already been said, the descriptions received from farmers almost uniformly state that there is no appearance of disease in the external aspect of the fœtus.

If, then, there is no fault in the quality of the nutritive materials furnished to the fœtus, does it receive a sufficient supply during the whole period of utero-gestation?

It has already been pointed out that the average yield of milk of all the cows in the State is 2,571 pounds per cow, while the average yield of cows on the non-affected farms examined in Herkimer county this year, is 4,386 pounds per cow, an excess of seventy per cent more milk than the average natural yield of cows, subjected to the same circumstances in other respects, than those herein referred to. That this excess is supplied at the expense of the fœtus, is respectfully submitted; but in order to show how, the more important particulars of the reproductive process should be fully understood, and a brief description is therefore introduced.

The essential features in the generative function are, in all cases, *the formation of a germ, which, living for a certain period at the expense of the parent, is afterward detached therefrom, and takes on a separate existence.* The forms under which this series of phenomena occur, are as various as there are species of animals and plants; but it is absolutely necessary, for its proper performance, that each step of the process should be performed, and in itself complete, before the next takes place.

That the performance of this function makes great demands upon the nutrition of the parent, is of such common knowledge that it is only necessary, here, to refer to the length of time expended in the preparation of the body of the parent, for its own maturity, before the function is called into action; in other words, until it shall be capable of bearing young.

When the germ is not formed from the parent stock, the condition is that of barrenness or sterility.

If the parent is unable from any cause, to furnish the proper mate-

rials for the maintenance of the germ, after fecundation, during the second of the reproductive processes, or that of development; or if, for any reason, either external or internal, the process of furnishing the supply is interfered with, this development is arrested. This arrest may be complete or partial; if complete, the germ dies, it is cast off as a foreign substance, and an abortion is said to occur; if the arrest is partial, a so-called deformity of some part is the usual consequence.

The methods by which the germ is nourished after conception, and before its birth, differ widely in different species of animals. The oviparous animals casting off the germ with its supply of nourishment, together, as an egg, to depend, perhaps, upon other external sources to furnish the conditions necessary to its development; the so-called parent not necessarily supplying any of the nutritive material. The viviparous animal retains the germ, attached to the parent, during the second period of its development, and until it is able to take on an independent existence. This connection in the truly viviparous animals is most intimate, the fœtus depending entirely upon the parent for its nutritive supply; and, as it increases in size and multiplicity of parts, making continuously greater demands for the materials necessary to its growth; *which in all cases are furnished more or less directly from the blood of the dam.*

Further differences exist even among viviparous animals in the arrangement of the parts concerned in the reproductive apparatus; and one very large class, the mammalia, is characterized by the presence of an organ—the udder or mammary gland—whose primary and natural function is to secrete a fluid for the nourishment of the young, immediately, and for a future variable period after birth; *which fluid is also derived from the blood of the parent.*

The uterus and mammary gland bear a certain inverse relationship to each other, with regard to their activity in function; the one, in the natural condition, being comparatively quiescent when the other is active. In this condition, during the development of the embryo—in other words, the pregnancy of the dam—the uterine organs are in a state of extreme activity, all other parts of the animal economy tending to the proper performance of this function; and the mammary gland, though showing evidences of being influenced by this process, is, in the earlier stages, inactive. But as pregnancy advances to its natural termination, and preparations are being made for the change that is about to occur, the most marked of these is the increase

in the activity of the mammary gland, which either just before or very soon after delivery secretes the milk designed to be the food of the young animal, whenever the more intimate placental connection is severed. The young animal, after birth, at first depends upon the milk entirely for its nourishment, and the supply of blood, before furnished to the placenta, is now directed to the mammary gland. But as the growth of the young animal enables it to look elsewhere for food, it makes less demand upon the dam; the supply of milk diminishes in quantity, and the uterine organs, *having had opportunity to return to their previous condition*, are again stimulated to the performance of their natural function; and when pregnancy again occurs, *the blood is redirected to the uterus, and the mammary glands diminish in activity*, soon become quiescent, and the same series of phenomena are again repeated.

In this hasty sketch of the main points in the history of the reproductive process, as it occurs naturally, uninterfered with by habits of domestication, your attention is called to the inverse relationship between the activity of the uterine organs and the mammary glands. By means of the first of these, the young animal is nourished during the period of its development, and by the second, during the period of its early growth.

The animal economy does not, as a rule, allow both of these processes to go on for a length of time together—it cannot support both at the same time. The instances in nature in which the dam at once suckles one offspring and carries another, are rare. The reproductive process is a great demand upon the parent. Nature requires a long period for its preparation, has made certain laws for its government while it is going on, and after a certain period has been devoted to its performance, regulates its cessation. A constant violation of any of its more important laws, must bring about a failure somewhere in its proper performance.

The size and functional activity of the mammary gland differ much in different species of animals, and may be very decidedly influenced, even in the same species, by a difference in circumstances and treatment; and it is further possible, by a long continued system of breeding, *carefully regulated by laws that have been found to perpetuate differences in breeds*, to increase permanently the capacity to produce more than the previous natural quantity of milk; and it is by recognizing and acting upon these laws, that the different breeds of the domestic cow have been established, and its present milk-

producing capacity reached. But it is necessary that the process should be a gradual one, *brought about by the continued repetition for generations*, of the union of two animals of opposite sexes, having the same tendency as regards this function;—the bull, as shown by his descent from a line of good milkers; the cow, by her own capacity and similar descent. If, however, instead of following these rules, the attempt is made to get a large increase at once, first, by forcing the uterine reproductive apparatus into activity before the animal has arrived at full maturity, and afterwards by continuing the drain upon the mammary secretion at the same time that a second fœtus is demanding its supply by the placenta; *by the first practice the uterine reproductive apparatus is weakened, and a liability to abortion established; and by the second, the natural supply of blood, which should go during pregnancy to the uterus to nourish the fœtus, is continued to be drawn in the other direction towards the mammary gland, arrest of development from inanition is endangered, and when it occurs, the fœtus is expelled as a foreign body.*

Now, it is respectfully submitted, that the reports to this commission from the dairy districts of New York, and to a more limited extent those of Massachusetts, during the last two years, show an habitual violation of both the laws governing the time at which the reproductive process should begin, and those regulating the nourishment of the fœtus-in-utero.

In the first place, in the year 1867, from the reports of 1,453 farms, it appears that on 1,047, or seventy-two per cent of farms, the habit is to impregnate the heifers at from one to one and a half years of age. The reports of this year state that out of 11,549 cows raised by the farmers reporting them, 9,591, or eighty-three per cent of cows, first calved at under three years of age.

If an animal be allowed to bear young much before it has arrived at maturity, *the process of reproduction, being essentially antagonistic to that of nutrition*, must interfere to a greater or less degree with its full growth, which of course depends upon its nutrition. An animal cannot be said to have arrived at maturity, simply because it is able to be fecundated; the phenomenon of ovulation, or heat, is but a part of the reproductive process; for the successful carrying out of the whole, the rest of the animal system should have acquired strength of constitution and vigor, sufficient to bear the tax of having a part of its nutritive materials taken by the fœtus, and this requires that nearly the full growth of its organs should be attained.

Now, a heifer at two years is not fully grown, and yet it is shown that eighty-three per cent of those raised, in the districts where abortions prevail, have been, for from the six to nine months preceding this age, subjected to a process in opposition to that of growth. And although it cannot be said that any one heifer, impregnated with a view to have her calve at two years old, will not carry to term, there is danger that the effect may, by reason of the strain upon the constitution thus produced, be felt in the subsequent pregnancies; and a table previously given shows, that while five per cent of those which first calved under three years of age, aborted in some of the subsequent pregnancies, the abortions among those which first calved at three years old or over, was but three per cent.

In the second place, the amount of milk demanded per cow, in the districts examined this year, as has been shown, is seventy per cent greater than the amount determined, by the yield of 1,195,000 cows, to be the natural yield. It is respectfully submitted, that this constitutes a violation of the rule that an animal but very seldom naturally suckles one offspring at the same time she is pregnant with another; in other words, that the milk secreting organs shall be in a condition of comparative quiescence during the period of gestation.

Now, the excessive yield here indicated is brought about, by first getting all the milk possible during the height of the season, and secondly, by continuing the process as long as possible—as long as the mammary gland can, by any means, be stimulated to activity—and yet, during the latter part of this time, the cow is pregnant; the fœtus is demanding an unusual supply of blood to the placenta for its nourishment, and the farmer is demanding a supply to the mammary gland for milk, forgetful entirely, apparently, *that the original design of the whole reproductive apparatus is to perpetuate the species;—not to get milk simply.* Under the circumstances of this drain, either the cow must refuse to give the milk, and be dried off, or the development of the fœtus, which is now the lowest in order of vitality, is checked from lack of nourishment. In a certain number of cases the latter occurs, and an abortion is the result.

In further confirmation of this view of the arrest of development from lack of nourishment, attention is called to the table indicating the period of pregnancy at which abortions most frequently occur, and it will be seen that of 1,320 abortions, 939, or seventy-one per cent, occur during the last three months of utero-gestation, at the time the fœtus must be considered as making the greatest demand

upon the dam for its nutrition; and yet the reports of 1867 indicate a habit of milking the cows to as late a period of pregnancy as they will give milk. The expressions not infrequently occurred in reply to the question: What month of pregnancy are the cows dried off from milking? "As long as it will pay." "I milk for a pint." "As long as possible." And in but few instances, were farmers able to give reliable answers as to the exact period of pregnancy at which any individual cows were dried off. Further evidence on this point would be desirable, but the report of every inspector, derived from the general statements of farmers, has been, that the habit almost universally exists of milking the cows to the last paying drop.

Besides the arrest of development from inanition thus brought about, the persistent dragging at the mammary gland for milk, during the later months of pregnancy, is a source of irritation to the uterus, by reason of the intimate physiological connection between these organs, and tends very materially to excite contractions in the uterus.

That irritation of this kind to the mammary gland in the pregnant human female will occasion contractions in the uterus, and abortion, is well known to and practiced by physicians when that object is to be attained. And if, in the domestic cow, a liability to abortion by too early breeding is established, and a tendency to the arrest of fœtal development endangered by inanition, it is not improbable that so constant an irritation as this will account for many cases of abortion.

The rule in the human female is very positive against the two processes of lactation and pregnancy going on, for a length of time, together, and its continued violation is there followed by directly the consequences here complained of in the domestic cow. If, during lactation pregnancy occurs, the former process must be stopped, or the mother is liable to a miscarriage; or, *vice versa*, if lactation is stopped, the phenomenon of ovulation, *theretofore in abeyance*, now begins again. And although it cannot be stated that in the cow, as also among other of the domestic animals, these processes cannot go on safely for a limited period together, still, natural historians and physiologists, when speaking of the periods at which wild animals reproduce their young, assume the rule in general terms. For, they say, "the duration of lactation being, in general, equal in duration to that of gestation,"* therefore, such or such an animal produces young ones in so often, *making the time, at least, double that of the*

* Flourens; Physiologie comparée. Paris. 1856 page 32.

known length of pregnancy. They also, however, state as a law, that habits of domestication tend to increase the power of reproduction within certain limits, both as regards frequency of occurrence, and the number produced at a birth, and so far, indirectly, acknowledge that a yield of milk in excess of that required by the animal, may be brought about by following correct principles in breeding. But we may also be allowed to reason, that a *sudden* demand of seventy per cent more milk from one set of cows, over others of the same breeds, subjected in all other respects to the same care and treatment, is too great a variation from the natural law, to be permitted without a check somewhere;—and it is seen that where this excess is demanded abortions occur.

The affirmative results obtained by the commission, this year, may therefore be briefly stated as follows, viz:

1st. That cows, which have first calved at under three years of age, are more liable to abort during their subsequent pregnancies, than those who first calved at three years of age or over, in the proportion of five to three; and that eighty-three per cent of the cows raised on the farms reporting them, do first calve at under three years of age.

2d. That cows, subjected to removals at any time, are liable to abort, over those raised on the farms, in the proportion of seven to four and a half; and that sixty-three per cent are thus removed.

3d. That cows, subjected to removals during pregnancy, are liable to abort, over those moved while not pregnant, in the proportion of nine to two; and that seventy per cent of those moved yearly are pregnant, and seventeen per cent are moved yearly.

4th. That arrest of development is the condition immediately preceding the abortion; that an excessive drain upon the secretion of milk, during pregnancy, has a tendency to produce arrest of development in the fœtus, from inanition; and that an excess of seventy per cent of milk is demanded from the cows in this district where abortions prevail.

In submitting these views for the consideration of the Society, it must be understood that no claim is made that these are all the causes that produced the abortions complained of, or that any one of them has by itself given rise to this trouble. The points desired to be shown are, that the practices of breeding from stock at the very early age indicated, and the exacting from the dam the excessive amount of milk shown to be drawn, have each injurious influences

upon the reproductive process, tending to produce abortions; and that, *acting together*, they in many cases do produce this result. And if it be allowed that these practices are markedly prejudicial, then various extraneous circumstances, impracticable to enumerate, which, under other conditions, would have little or no effect, now exert an active influence to bring about the disease.

To so general an extent do these practices prevail, that it has been found practically impossible, to separate the farms in which they exist from those where they do not; for some farmers breed one part of their heifers at two years old, and another part at three years old, and the farm must thus be included in both classes. And the irregularities heretofore referred to, with regard to the appearance or disappearance of the disease in towns, or farms, or cows, may be accounted for, in part, by the changes made in the herds between different farms.

The commission endeavored to obtain information with regard to the first appearance of the disease on each farm, with a view to determine, if possible, the primary influences affecting the cows first aborting; but in Herkimer county the disease has been of so long standing; changes among the cows are so constantly made, as also to less extent among the occupants of farms, that it was found impossible to derive much information upon this point there. In the town of Hardwick, Massachusetts, however, more definite answers could be obtained. The disease has existed there but a short time; the dairies are smaller; so many changes among the stock have not occurred, and the disease was therefore more easily traced. The replies are tabulated as follows:

Of all the farms reporting abortions upon them in this or previous years:

1st. Number in which the first appearance could be traced directly to the introduction of animals (bulls, cows, or heifers in calf) from an aborting dairy	14
2d. Occurred in cows introduced that year from a non-aborting dairy	1
3d. Occurred in cows which had been on the farm one year or more, and had not, so far as known, been brought in contact with an aborting dairy	11
4th. Occurred in cows whose previous history was unknown	5
Total	31

The largest proportion of farms, it will be noticed above, is of those which report the access of the disease, as coincident with the introduction of animals from an infected dairy; but the next largest is the one in which the cows had been on the farm for one year or more, and were not brought in contact with an aborting dairy; and the difference between these two directly antagonistic classes is, in this town, too slight to consider, that the disease is any more liable to be first introduced from a source foreign to the farm, than it is to occur thereon spontaneously.

With regard to whether a so-called sympathetic influence could have an effect upon the disease, the only manner in which an inquiry could be brought to bear was, to get evidence as to whether the sight, smell or other knowledge of an aborted fœtus or its products exerted any influence upon an apparently healthy pregnant cow; but as no farmer, among those reporting abortions in this or previous years, acknowledged having taken any especial care to remove the fœtal products, except in a very few instances "to throw it over the fence, out of the barnyard;" and as the aborting cows were not even then separated from the rest of the herd, no decision could be arrived at on this point.

The expenses of the Commission have been as follows:

Salaries of Inspectors	$1,210 00
Current expenses of Inspectors	920 15
Salaries of Assistant Inspectors	600 00
Current expenses of Assistant Inspectors	630 93
Salary of acting Assistant Inspector, twenty-three days, at $100 per month	77 00
Cow for autopsy	14 28
Mounting plants, &c.	30 82
Stationery	6 97
Printing	48 00
Maps, &c.	20 61
Express and postage	14 30
Traveling expenses of Commissioner	37 52
Salary of Commissioner	1,000 00
Total	$4,610 58

The Commission is under especial obligation to Inspector R. F. Halsted, M. D., for the unusual care always taken to obtain accurate information, as well as for the interest displayed in the investigation throughout. Both he and the Assistant Inspectors, Drs. Benjamin R. Swan, Daniel W. Kissam and N. A. Lindley, worked assiduously while on duty, and their labors were in many respects fatiguing.

Acknowledgments for the microscopical examination and report are also due to Prof. John C. Dalton; and also to Messrs. Charles J. Sprague and John L. Russell, of Massachusetts, for the classification and report on fungi.

Respectfully submitted.

W. H. CARMALT, M. D.,
Commissioner.

APPENDIX.

(A.)

REPORT OF THE

Farm cultivated by Mr......

In the Town of ..... *County of*.....

State of.....

Number of calves born alive at full term, from April 1, 1867, to April 1, 1868 .....

Number of abortions occurring from April 1, 1867, to April 1, 1868.....

Total number of cows in calf from April 1, 1867, to April 1, 1868 ...

Number of abortions occurring in the—

1st Month of pregnancy.....
2d Month of pregnancy.....
3d Month of pregnancy.....
4th Month of pregnancy.....
5th Month of pregnancy.....
6th Month of pregnancy.....
7th Month of pregnancy.....
8th Month of pregnancy.....
9th Month of pregnancy.....

Total .....

Number of abortions occurring in the month of—

April	November .....
May	December .....
June	January .....
July	February .....
August	March .....
September	
October	Total .....

Number of aborted calves born dead or diseased-looking.....

Number of aborted calves born alive and healthy-looking, according to age.....

Total .....

	Number of Cows Impregnated by			
	Bull aged 1 year.	Bull aged 2 years.	Bull aged 3 yrs. or over.	Total.
That carried calf to full term.....				
That aborted				

How many cows in all were served during the year 1867–8, by bull aged 1 year?.....

How many cows in all were served during the year 1867–8, by bull aged 2 years?.....

How many cows in all were served during the year 1867–8, by bull aged 3 years or over? .....

	Number of Cows that were			
	Good milkers. Averaging more than 7 quarts per day.	Ordinary milkers. Averaging less than 7 quarts per day.	First Pregnancy.	Total.
That carried calf to full term				
That aborted				
Total				
Of those Cows that Aborted,				
In how many did the yield of milk entirely fail				
In how many did the yield of milk diminish in quantity*				
In how many was the yield of milk unaffected				
Total				

* In what proportion to their usual yield.

Number that were sick immediately before, during or after abortion .....

Number that were *not* sick immediately before, during or after abortion. _____

Total..... _____

What symptoms does the cow exhibit when sick, before, during or after abortion; as to appetite, emaciation, stupor or restlessness, unnatural discharges, or other particulars?

	Of all the Cows on this Farm in the Year 1867–8		
	That carried calf to full term.	That aborted.	Total.
Number of cases of first pregnancy			
Number that had borne calf at full term the previous year.....			
Number that had aborted the previous year			
Total			
Number raised on this farm			
Number brought on as unimpregnated heifers			
Number brought on pregnant during the past year			
Number brought on *not* pregnant during the past year.....			
Number that have been on this farm one year or more			
Total.....			
Of all those raised on this farm from Heifers,			
How many first calved under 3 years of age			
How many first calved at 3 years of age, or over.....			
Total.....			

What was the average quantity of milk sold from this farm, per cow, in the year 1867–8? gallons.

What was the average amount of butter made on this farm, per cow, in the year 1867–8? pounds.

What was the average amount of cheese made on this farm, per cow, in the year 1867–8? pounds.

Upon what kinds of hay are the cows fed?

Was the hay well cured and sweet?

What root crops are given, and how much to each cow? Turnips carrots beets parsnips potatoes.

What ground feed, and how much to each cow? Oats rye buckwheat barley wheat-bran.

Is the grain used for ground feed raised on the farm or purchased? If so, where?

Investigate and report upon the following points:

1st. The manner of the first appearance of the disease on this farm.

2d. What evidence there may be that the sight, smell or other knowledge of an aborted fœtus, or its products, will cause an apparently healthy pregnant cow to abort.

3d. Any other actual facts that go towards accounting for the occurrence and spread of this disease upon this farm.

(B.)

Report on Plants growing spontaneously in Danube.

[Specimens of the Numbered plants are in the Rooms of the Agricultural Society. Specimens of those designated by an Asterisk (*) were not preserved.]

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Ranunculaceæ.	"*Crowfoot Family.*"			
1. Clematis Virginiana.—*L.*	Common Virgin's-bower	Fence-rows	General but scarce	W. R. Stevens, A. Devendorf, Jacob Walrath, Fr. Lewis, H. Haupt, S. G. Spoor, L. Green, J. E. Fox, P. Baum, N. N. Schuyler, A. Jones, A. Decker, E. Decker, Ed. Simms, John Snell, G. Spoor, A. Miller.
2. Anemone Virginiana.—*L.*	Tall Anemone	Fence-rows	General but scarce	On all farms.
3. Anemone Pennsylvanica.—*L.*	Pennsylvania Anemone	Meadows	Rare	L. Green, Jno. Smith.
4. Hepatica acutiloba.—*D. C.*	Sharp-lobed Hepatica	Woods	General and common	In all woods.
5. Thalictrum dioicum.—*L.*	Early meadow Rue	Woods	Probably general but scarce	W. R. Stevens, A. Jones.
Thalictrum purpurascens.*—*L.*	Purple meadow Rue	Roadsides	Rare	Near Fink's basin.
6. Thalictrum Cornuti.—*L.*	Meadow Rue	Meadows	Rare	H. N. Gros (scarce), L. Green (abundant).
Ranunculus abortivus.*—*L.*	Small flowered Crowfoot	Woods	Rare	W. R. Stevens.
Ranunculus sceleratus.*—*L.*	Cursed Crowfoot	Ditches	Rare	H. N. Gros.
7. Ranunculus Pennsylvanica.—*L.*	Bristly Crowfoot	Meadows	Rare	G. F. Bellinger.
8. Ranunculus acris.—*L.*	Tall Crowfoot, Buttercup	Meadows and pastures	General and abundant	On all farms.
9. Actea spicata.—*L.* var. rubra.—*Michx.*	Red Bane-berry	Thickets and woods	General and common	On all farms (banks of ravines).
10. Actea alba.—*Bigelow*	White Bane-berry, Cohosh	Thickets and woods	General and common	On all farms (banks of ravines).
*Magnoliaceæ.**	"*Magnolia Family.*"			
Liriodendron Tulipifera.*—*L.*	Tulip Tree	Woods	General but scarce	In most forests.
Menispermaceæ.	"*Moon-seed Family.*"			
11. Menispermum Canadense.—*L.*	Canadian Moon-seed	Fence-rows	Probably general but scarce	W. R. Stevens, A. Devendorf.
Berberidaceæ.	"*Barberry Family.*"			
12. Caulophyllum thalictroides—*Michx.*	Papoose-root	Woods	General and common	W. R. Stevens, S. G. Spoor (Van Allen ten't), A. J. & S. Stafford.
13. Podophyllum peltatum.—*L.*	May Apple, Mandrake	Meadows, pastures and woods	General and common	A. Devendorf.
*Papavaraceæ.**	"*Poppy Family.*"			
Chelodonium majus.*—*L.*	Celadine	Roadsides	Rare (extremely)	Not noted as to locality.
*Fumariaceæ.**	"*Fumitory Family.*"			
Dicentra Canadensis.*—*D. C.*	Squirrel Corn	Woods	Probably general but scarce	G. Bellinger.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Crucíferæ.	"*Mustard Family.*"			
Nasturtium Armoracia.*—*Fries*	Horse-radish	Yards	Probably general and common	A. Miller.
14. Nasturtium palustre.—*D. C.*	Marsh Cress	Pastures	Rare	J. E. Fox.
Cardamine hirsuta.*—*L.*	Common Bitter Cress	Pastures	Rare	J. E. Fox.
Arabis perfoliata.*—*Lam.*		Meadows	General but scarce	W. R. Stevens.
15. Barbaria vulgaris.—*R. Br.*	Common Winter Cress, Yellow Rocket.	Meadows, pastures and woods	General but scarce	W. R. Stevens.
Sisymbrium officinale.*—*Scop.*	Hedge mustard	Yards	Probably general but scarce	W. R. Stevens, H. N. Gros.
Sinipis (Brassica) nigra.*—*L.*	Black mustard	Yards and gardens	General and common	W. R. Stevens, H. N. Gros.
16. Sinipis (Brassica) arvensis.—*L.*	Field mustard, Charlock	Grain fields	General, often abundant	W. R. Stevens, A. Devendorf, Levi Walrath (1st).
17. Capsella Bursa-pasturis.—*Moench*	Shepherd's Purse	Yards and gardens	General and common	W. R. Stevens, H. N. Gros.
Dentaria diphylla.*—*L.*		Woods	Rare	Jacob Walrath.
Violaceæ.	"*Violet Family.*"			
18. Viola rotundiflora.—*Michx.*	Round leaved Violet	Woods	General but scarce	A. Decker.
19. Viola cuculata.—*Ait.* var. cordata	Common blue Violet	Meadows and pastures	Rare	W. R. Stevens, A. Devendorf.
20. Viola striata.—*Ait.*	Pale Violet	Woods	General and common	In all woods.
21. Viola Canadensis.—*L.*	Canada Violet	Woods	Rare	W. R. Stevens.
22. Viola pubescens.—*Ait.*	Downy yellow Violet	Woods	General but scarce	W. R. Stevens, A. Devendorf.
Hypericaceæ.	"*St. John's Wort Family.*"			
23. Hypericum perforatum.—*L.*	St. John's Wort	Meadows and pastures	General and common	E. Coville's pastures (abundantly).
24. Hypericum corymbosum.—*Muhl*		Meadows and pastures	Rare	W. R. Stevens, Jacob Shall.
Caroplyllaceæ.	"*Pink Family.*"			
25. Saponaria officinalis.—*L.*	Common or Soap Wort, Bouncing Bet.	Pastures	Rare	Ed. Simms, H. N. Gros.
26. Silene noctiflora.—*L.*	Night-flowering Catch-fly	Grain fields	General and common	On all farms, W. R. Stevens (abundant).
27. Stellaria media.—*Smith*	Common Chick-weed	Meadows, pastures and woods	General and common	On all farms.
28. Stellaria longipes.—*Goldie*	Long-stalked Stitch-wort	Pastures	Rare	W. R. Stevens (abundant).
29. Cerastium viscosum.—*L.*	Large mouse-eared Chickweed	Meadows, pastures, grain fields and woods	General and common	On all farms.
30. Spergula arvensis.—*L.*	Corn spurry	Grain fields	General, variable in frequency	On all farms, J. H. Stauring (abundant).
*Portulacaceæ.**	"*Purslane Family.*"			
Portulaca oleraceæ.*—*L.*	Common Purslane	Gardens	General and common	On most farms.
Malvaceæ.	"*Mallow Family.*"			
31. Malva Moschata.—*L.*	Musk Mallow	Roadsides	Rare	W. R. Stevens, H. N. Gros.
Malva rotundifolia.*—*L.*	Common Mallow	Gardens	General and common	On most farms.
Abutilon Avicennæ.—*Gærtn*	Velvet Leaf	Roadsides	Rare	Near Castle Church.

Tiliaceæ.	"*Linden Family.*"			
32. Tilia Americana.—*L.*	Bass wood	Woods	General and common	In all woods.
Linaceæ.	"*Flax Family.*"			
33. Linum usitatissimum.—*L.*	Common Flax	Grain-fields	Rare	J. H. Stauring. J. Ostrander and Jno. Walrath's (abundant in each).
Geraniaceæ.	"*Geranium Family.*"			
Geranium maculatum.*—*L.*	Wild Crane's bill	Meadows and pastures	Rare	W. R. Stevens.
34. Geranium Robertianum.—*L.*	Herb Robert	Woods	General and common	In all woods.
35. Impatiens pallida.—*Nutt.*	Pale Touch-me-not	Woods	Probably general but scarce,	Ed. Simms, A. Jones.
Impatiens fulva.*—*Nutt*	Spotted Touch-me-not	Pastures and woods	General but scarce	S. P. Jones.
Oxalis Acetocella.*—*L.*	Common Wood-sorrel	Woods	General and common	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, Ed. Simms, A. Jones, G. Bellinger.
36. Oxalis stricta.—*L.*	Yellow Wood-sorrel	Meadows, pastures and woods.	General and usually abundant.	On all farms.
Anacardiaceæ.	"*Cashew Family.*"			
37. Rhus typhina.—*L.*	Stag-horn Sumach	Fence-rows	General and common	On all farms.
Rhus glabra.*—*L*	Smooth Sumach	Fence-rows	Rare	W. R. Stevens.
38. Rhus Toxicodendron.—*L.*	Poison Ivy, Poison Oak	Fence-rows	Rare	N. N. Schuyler.
Vitaceæ.	"*Vine Family.*"			
39. Vitis cordifolia.—*Michx.*	Winter or Frost Grape	Fence-rows	General but scarce	W. R. Stevens, A. Devendorf, Fr. Lewis, S. G. Spoor, Ed. Simms, G. Bellinger, D. Bellinger, Jos. Snell, G. Spoor, J. J. Rickardt, A. Miller.
40. Ampelopsis quinquefolia.—*Michx.*	Virginia Creeper	Fence-rows	Rare	Jacob Walrath, Fr. Lewis, N. N. Schuyler, A. Jones, A. and P. Cramer, H. N. Gros.
*Celastraceæ.**	"*Staff-Tree Family.*"			
Celastrus scandens.*—*L*	Climbing Bitter-sweet	Fence-rows	Rare	W. R. Stevens, Jacob Walrath, N. N. Schuyler.
Sapindaceæ.	"*Soap-berry Family.*"			
Acer Pennsylvanicum.*—*L.*	Striped Maple	Woods	General and common	In all forests.
41. Acer spicatum.—*Lam.*	Mountain Maple	Woods	General and common.	In all forests.
42. Acer saccharinum.—*Wang*	Sugar Maple	Woods	General and common	In all forests.
43. Acer saccharinum, var. nigrum—*Wang*	Black sugar maple	Woods	Rare	Mrs. Devendorf (Brigg's ten't).
*Polygalaceæ.**	"*Milk-wort Family.*"			
Polygala verticillata.*—*L*		Roadsides	Rare	W. R. Stevens.
Leguminosæ.	"*Pulse Family.*"			
44. Trifolium pratense.—*L.*	Red Clover	Meadows, pastures and woods.	General and abundant, forms from one-q arter to one-third of all hay and pastures	On all farms.
45. Trifolium repens.—*L*	White Clover	Meadows, pastures and woods.	General and abundant, forms from one-fifth to one-quarter of all pastures, and a large proportion of the hay	On all farms.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Leguminosæ—Continued.	"*Pulse Family*"—Continued.			
46. Trifolium Agrarium.—*L*	Yellow or Hop Clover	Meadows	Rare	A. R. Jones.
47. Meliotis officinalis.—*Willd.*	Yellow Meliot	Waste places	Rare	L. Green, H. N. Gros, Ar. Jones, (near canal in each.)
48. Meliotus alba.—*Lam*	White Meliot	Waste places	Rare	Along creek from Newville to Castle Church.
49. Medicago lupulina.—*L.*	Black Medick, Non-such	Meadows and pastures	Probably general and common	Abundant on W. R. Stevens and A. Devendorf; common on Fr. Lewis, S. G. Spoor, H. Green, J. E. Fox (Smith ten't), P. Baum, N. N. Schuyler, A. Jones, A. Decker, R. Landt, Ed. Simms, S. P. Jones, E. Decker, H. N. Gros, L. Green.
50. Desmodium acuminatum.—*D. C.*		Woods	Rare	Fr. Lewis, E. Decker, Jos. Snell.
51. Desmodium Canadense.—*D. C.*		Meadows and thickets	Rare	Jno. Shall.
52. Vicia sativa.—*L*	Common Vetch or Tare	Meadows, pastures and grain fields	General and common	Abundant in newly seeded meadows of A. J. & S. Stafford, H. Peterie, Jos. Snell, N. N. Schuyler, A. Fox, Mrs. Walrath, Jno. Shall, J. J. Shall, Ar. Jones.
53. Phaseolus perennis.—*L*		Pastures	Rare	A. Jones.
54. Amphicarpa Monoica.—*Nutt*	Hog Peanut	Woods	Rare	Ed. Simms.
Rosaceæ.	"*Rose Family.*"			
Prunus Pennsylvanica.*—*L*	Wild red Cherry	Meadows and pastures	General but scarce	S. G. Spoor, Fr. Lewis, H. Haupt.
Prunus Virginiana.*—*L*	Choke Cherry	Meadows and pastures	General but scarce	S. G. Spoor, Jno. Smith.
55. Prunus serotina.—*Ehrhart*	Wild black Cherry	Fence-rows	General but scarce	W. R. Stevens, S. G. Spoor, Fr. Lewis, H. Haupt.
56. Agrimonia Eupatoria.—*L*	Common Agrimony	Fence-rows	General but scarce	On all farms.
57. Geum Album.—*Gmelin*		Fence-rows	Rare	W. R. Stevens, H. N. Gros, L. Green.
58. Geum strictum.—*Ait*		Fence-rows	General and common	On all farms.
59. Geum rivale.—*L*	Water or purple Avens	Meadows (in bog)	Rare	L. Green.
60. Waldsteinia fragarioides.—*Tratt*	Barren Strawberry	Woods	General but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt.
61. Potentilla Norvegica.—*L*		Meadows and pastures	General and common	On all farms.
Potentilla Canadensis.*—*L*	Common Five-finger	Meadows and pastures	General and common	E. Decker.
62. Potentilla argentia.—*L*	Silvery Five-finger	Pastures	Rare	W. R. Stevens, A. Devendorf.
63. Fragaria Virginiana.—*Ehrhart*	Wild Strawberry	Woods	General and common	In all woods.
Fragaria vesca.*—*L*	Wild Strawberry	Meadows, pastures and woods	General and common	In all woods.
64. Dalibarda repens.—*L*		Pastures	Rare	H. Haupt.
65. Rubus odoratus.—*L*	Purple-flowering Raspberry	Fence-rows and banks	General and common	On all farms.

66. Rubus triflorus.—*Richardson*	Dwarf Raspberry	Woods	Rare	W. R. Stevens, A. Devendorf, L. Green.
Rubus strigosus.*—*Michx*	Wild red Raspberry	Fence-rows and thickets	General and common	On all farms.
67. Rubus occidentalis.—*L*	Black Raspberry	Fence-rows and thickets	General but scarce	On all farms.
Rubus villosus.*—*Ait*	Common or high Blackberry	Fence-rows and thickets	General and common	On all farms.
68. Rosa rubigonosa.—*L*	True Sweet-briar	Fence-rows and thickets	General but scarce	On all farms.
69. Crætugus coccinia.—*L*	Scarlet-fruited Thorn	Fence-rows and thickets	Rare	W. R. Stevens.
70. Crætugus tormentosa.—*L*	Black or Pine Thorn	Fence-rows and thickets	Rare	W. R. Stevens, A. Devendorf, Jacob Walrath.
Saxigrafaceæ.	"*Saxifrage Family.*"			
71. Ribes cynobasti.—*L*	Wild Gooseberry	Fence-rows and thickets	General and common	On all farms.
72. Ribes floridum.—*L*	Wild black Currant	Thickets	Rare	A. J. & S. Stafford, L. Green.
73. M tella diphylla.—*L*	Bishop's Cap	Woods	General and common	In all woods.
74. Tiarella cordiflora.—*L*		Woods	General and common	In all woods.
Chrysoplenium Americanum.—*Schw*	Golden Saxifrage	Near springs	Very rare	W. & R. Jones, Fr. Lewis.
Crassulaceæ.	"*Orpine Family.*"			
75. Penthorum sedoides.—*L*	Ditch Stone Crop	Meadows and pastures	Rare	Fr. Lewis, A. Jones, L. Green.
Sedum telephium.*—*L*	Live-for-ever	Meadows and pastures	Rare	J. Gardinier, Fr. Lewis, A. Jones.
Hamamelaceæ.	"*Witch Hazel Family.*"			
76. Hamamelis Virginica.—*L*	Witch Hazel	Woods	General and common	In all woods.
Onagraceæ.	"*Evening Primrose Family.*"			
77. Circæa Lutetiana.—*L*	Enchanter's Night-shade	Woods	General and common	In all woods.
78. Circæa Alpina.—*L*	Enchanter's Night-shade	Woods	General and common	In all woods.
79. Epilobium angustifolium.—*L*	Great Willow Herb	Thickets	Rare	E. Decker.
80. Epilobium coloratum.—*Muhl*		Meadows and pastures	General but scarce	On all farms.
Œnothera biennis.*—*L*	Common evening Primrose	Meadows and pastures	General but scarce	On all farms.
81. Œnothera pumila.—*L*		Meadows and pastures	Rare	N. Stafford (abundant), E. Decker.
Ludwigia palustris.*—*Ell*	Water Purslane	Ditches	Probably general but scarce	Fr. Lewis.
Umbelliferæ.	"*Parsley Family.*"			
82. Carum Carui	Caraway	Meadows and pastures	Rare	W. R. Stevens, M. Wilkes, J. Gardinier.
83. Hydrocotyle Americana.—*L*	Penny-wort	Wet shady places	Rare	W. R. Stevens.
84. Sanicula Canadensis.—*L*	Black snake root (?)	Woods	General and common	On all farms.
85. Sanicula Marylandica.—*L*	Black snake root	Woods	Rare	W. R. Stevens, A. Devendorf, Jacob Walrath.
86. Pastinaca sativa.—*L*	Common Parsnip	Meadows and pastures	General and common	Abundant on H. N. Gros, Mrs. Walrath. J. E. Fox (Smith, tenant), John Shall, L. Green, H. Bellinger.
87. Conium maculatum.—*L*	Poison Hemlock	Meadows	Rare	L. Green.
88. Cryptotænia Canadensis.—*D. C.*	Hone-wort	Woods	General and common	In all woods.
89. Osmorrhiza brevistylis.—*D. C.*	Hairy Sweet Cicily	Woods	General and common	In all woods (H. N. Gros, abundantly).
Araliaceæ.	"*Ginseng Family.*"			
90. Aralia racemosa.—*L*	Spikenard	Woods	General but scarce	In all woods.
91. Aralia nudicaulis.—*L*	Wild Sarsaparilla	Woods	General but scarce	In all woods.
92. Aralia quinquefolia.—*L*	Ginseng	Woods	General but scarce	In all woods.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Cornaceæ.	"*Dog-wood Family.*"			
Cornus Canadensis.*—*L.*	Bunch berry	Woods	Rare	W. R. Stevens.
93. Cornus circinata.—*L'Her.*	Dog-wood	Thickets	Rare	W. R. Stevens.
94. Cornus sericea.—*L.*	Kinnikinnick	Thickets	Probably general but scarce	W. R. Stevens, Fr. Lewis, E. Decker, G. Bellinger, L. Green, D. Bellinger.
95. Cornus paniculata.—*L'Her.*	Panicled cornel	Bog	Rare	L. Green.
96. Cornus alternifolia		Thickets	Probably general but scarce	Fr. Lewis, S. G. Spoor, H. Haupt, W. Jones.
Caprifoliaceæ.	"*Honey-suckle Family.*"			
97. Linnæa borealis.—*Gronow*	Twin flower	Woods	Rare	W. R. Stevens, A. Devendorf, H. N. Gros.
98. Diervilla trifida.—*Moench*	Bush honey-suckle	Woods	Rare	W. R. Stevens.
99. Sambucus Canadensis.—*L.*	Common Elder	Meadows, pastures and fence rows	General and common	On all farms.
Sambucus pubens.*—*Michx.*	Red-berried Elder	Woods	Rare	Ed. Simms.
Viburnum Lentago.*—*L.*	Sweet Viburnum, Sheep berry	Thickets	Rare	W. R. Stevens.
100. Viburnum acerifolium.—*L.*	Maple-leaved Arrow-wood	Woods	General but scarce	Fr. Lewis, N. N. Schuyler.
101. Viburnum lantanoides.—*Michx.*	Hobble-bush, Am. Wayfaring Tree	Woods	General about Newville	Fr. Lewis, S. G. Spoor, H. Haupt, Edward Simms, W. Jones, C. Andrews, J. Hendricks, S. G. Spoor (Van Allen ten't), A. Decker.
Rubiaceæ.	"*Madder Family.*"			
102. Galium Mollugo.—*L.*	Smooth Bed-straw	Pastures	Rare (in country)	W. R. Stevens.
103. Galium asprellum.—*Michx*	Rough Bed-straw	Pastures	Rare	W. R. Stevens, H. N. Gros. L. Green.
104. Galium trifidum.—*L.*	Small Bed-straw	Meadows and pastures	Rare	Fr. Lewis, J. E. Fox.
105. Galium triflorum.—*Michx.*	Sweet-scented Bed-straw	Woods	General and common	In all woods.
106. Galium circæzans.—*Michx.*	Wild Liquorice	Woods	Rare	W. R. Stevens, A. Devendorf, Jacob Walrath, H. N. Gros.
107. Galium lanceolatum.—*Torr.*	Wild Liquorice	Woods	Rare	W. R. Stevens, A. Devendorf, Jos. Snell, H. N. Gros.
108. Mitchella repens.—*L.*	Partridge berry	Woods	General and common	In all woods.
Dipsaceæ.	"*Teasel Family.*"			
109. Dipsacus Fullorum.—*L.*	Fuller's Teasel	Pastures	Rare	Fr. Lewis. H. Peterie.
Compositæ.	"*Composite Family.*"			
110. Eupatorium purpureum.—*L.*	Trumpet Weed	Pastures	Rare	W. R. Stevens, A. Devendorf, Fr. Lewis, S. G. Spoor, H. Haupt, J. E. Fox (Smith ten't), D. Champion.
111. Eupatorium perfoliatum.—*L.*	Thorough Wort, Bone-set	Wet places	General and common	On all farms.
112. Eupatorium ageratoides.—*L.*	White Snake-root	Woods	General and common	In all woods.

113. Tussilago Farfara.—*L*.	Coltsfoot	Pastures and woods	General and common	Except W. R. Stevens, A. Devendorf, Jacob Walrath, H. N. Gros, L. Green.
114. Aster corymbosus.—*Ait*.		Woods	General and common	In all woods.
115. Aster macrophyllus.—*L*.		Woods	Probably general and common	A. Miller, E. Decker, G. Bellinger, H. Haupt, G. Spoor, S. G. Spoor, Edward Simms, J. J. Rickardt.
Aster cordifolis.*—*L*.		Fence-rows and woods	General and common	On all farms.
116. Aster puniceus.—*L*.		Meadows, pastures and woods	General and common	On all farms.
117. Aster simplex.—*Willd*.		Fence-rows	Probably general and common	A. Miller, E. Decker, G. Bellinger, H. Peterie, Jno. Snell.
Aster acuminatus.*—*Michx*.		Woods	Probably general and common	Fr. Lewis.
Aster Novæ-Angliæ.*—*L*.		Roadsides	Rare	E. Decker, G. Bellinger, H. Peterie, Jno Snell.
118. Erigeron Canadense.—*L*.	Horse-weed, Bitter-weed	Pastures and woods	Rare	A. Decker.
119. Erigeron Philadelphicum.—*L*.	Flea-bane	Pastures and woods	Probably general but scarce	W. R. Stevens, Fr. Lewis.
120. Erigeron annuum.—*Pers*.	Daisy Flea-bane, Sweet Scabious	Meadows and pastures	General and common	On all farms.
121. Erigeron strigosum.—*Muhl*.	Daisy Flea-bane	Meadows and pastures	General and common	On all farms.
Solidago cæsia.*—*L*.		Woods	Rare	W. R. Stevens, Fr. Lewis, S. G. Spoor, N. N. Schuyler, A. Decker, R. Landt, S. G. Spoor (Van Allen ten't).
Solidago latifolia.*—*L*.		Shaded ravines and woods	Probably general but scarce	G. Spoor, W. & R. Jones.
122. Solidago odora.—*Ait*.	Sweet Golden-rod	Ravines and woods	Rare	N. N. Schuyler.
Solidago nemoralis.*—*Ait*.		Pastures	Rare	E. Coville.
Solidago gigantea.*—*Ait*.		Meadows and pastures	General and common	On all farms.
Solidago lanceolata.*—*L*.		Pastures	Rare	E. Decker.
123. Inula Helenium.—*L*.	Common Elacampane	Pastures	General and common	On all farms except W. R. Stevens, A. Devendorf, S. G. Spoor (Van Allen ten't), L. Green, J. Ostrander; abundant on Fr. Lewis, D. Bellinger, H. Peterie, Ackerman (Donovan ten't), Jos. Snell, Jno. Snell, J. Walter.
Ambrosia artemisiæfolia.*—*L*.	Roman worm-wood, Hog-weed Bitter-weed	Roadsides, yards and grain-fields	General, but scarce	On all farms.
124. Xanthium strumarium.—*L*.	Common Cockle-bur	Roadsides and yards	Rare	Fr. Lewis, A. Miller.
125. Rudbekia hirta.—*L*.		Meadows and pastures	General, but scarce	W. R. Stevens, A. Devendorf.
Helianthus strumosus.*—*L*.		Banks of ravines	Rare	A. Jones.
Helianthus tuberosus.*—*L*.	Jerusalem Artichoke	Fence-rows	Rare	A. Schuyler.
126. Bidens frondosa.—*L*.	Common Beggar's ticks	Meadows and pastures (in wet places)	General and common	On all farms.
Bidens connata.*—*Muhl*.	Swamp Beggar's Lice	Wet places	Rare	J. Gardinier.
Bidens chrysanthemoides.*—*Michx*.	Bur-Marigold	Meadows and pastures	Probably general and common	On all farms.
127. Anthemis arvensis.—*L*.	Corn Chamomile	Roadsides and grain-fields	General, but scarce	On all farms.
128. Achilla Millofolium.—*L*	Common Yarrow Milfoil	Meadows and pastures	General and common	Abundant on M. Wilkes, A. Miller.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Compositæ—Continued.	"*Composite Family*"—Con.			
129. Leucanthemum vulgare.—*L*.....	White Daisy, Ox Eye	Meadows and pastures.....	General and common	On all farms; abundant on M. Wilkes, E. Coville, D. Champion, L. Devendorf.
130. Tanacetum vulgare.—*L*...	Common Tansey.....	Pastures	Rare	Fr. Lewis, S. G. Spoor.
131. Gnaphalium decurrens.—*Ives*.....	Everlasting	Pastures	General and common	On all farms.
132. Gnaphalium uliginosum.—*L*.....	Low Cudweed	Pastures	General and common	On all farms.
133. Antennaria margaritacea.—*R. Br*..	Pearly Everlasting.....	Pastures	General and abundant	On all farms.
134. Antennaria plantaginifolia.—*Hook*..	Plantain-leaved Everlasting...	Pastures	Probably general, but occurs only on poor ground.....	Scarce on C. Hardee, J. H. Stauring, J. Ostrander, W. & R. Jones; common on Jno. Snell, H. Peterie, Jos. Snell, G. Spoor, J. J. Rickardt, Ackerman (Donovan ten't), A. Miller; abundant in patches on E. Decker, G. Bellinger, D. Bellinger.
Erechthides hieracifolia.*—*Raf*....	Fire-weed	Pastures	Rare	A. Decker.
135. Centaura Cyanus.—*L*.....	Blue-bottle....	Pastures	Rare	A. Decker.
136. Cirsium lanceolatum.—*Scop*.....	Common Thistle.....	Meadows and pastures.....	General and common	On all farms; abundant on Fr. Lewis, E. Coville.
137. Cirsium muticum.—*Michx*.....	Swamp Thistle	Woods.....	Rare.....	W. R. Stevens.
138. Cirsium arvense.—*Scop*.....	Canada Thistle	Meadows, pastures and grain-fields	General and common	On all farms.
139. Lappa major.—*Gærtn*.....	Common Burdock	Fence-rows.....	General but scarce.....	On all farms.
140. Hieracium scabrum.—*Michx*.....	Rough Hawkweed.....	Pastures	Rare	E. Decker. A. J. & S. Stafford, G. Bellinger, D. Bellinger.
141. Hieracium venosum.—*L*	Rattlesnake weed.....	Woods.....	Rare	W. R. Stevens.
142. Hieracium paniculatum.—*L*.....	Panicled Hawkweed..	Woods.....	Rare	H. Haupt, Ed. Simms.
143. Nabulus albus.—*Hook*.....	Rattlesnake root, white lettuce	Woods.	Probably general but scarce...	H. Haupt, S. P. Jones, A. Jones.
144. Taraxacum Dens-leonis.—*Derf*.....	Common Dandelion.....	Meadows and pastures.....	General and abundant	On all farms.
145. Lactuca elongata.—*L*.....	Wild Lettuce....	Fence-rows	General and common	On all farms.
146. Malgedium acuminatum.—*D. C*...	....	Fence-rows	General but scarce.....	On all farms.
147. Sonchus oleraceus.—*L*.....	Common Sow Thistle.....	Grain-fields	Rare	J. H. Stauring, H. N. Saunders, H. N. Gros, Jno. Shall.
148. Sonchus asper.—*Vill*	Spiny-leaved Sow Thistle.....	Grain-fields	Rare	J. H. Stauring, H N. Saunders, Jno. Shall.
Lobeliaceæ.	"*Lobelia Family.*"			
149. Lobelia syphilitica.—*L*.....	Great Lobelia.....	Roadsides	Rare	Between Little Falls and Fink's basin.
150. Lobelia inflata.—*L*.....	Indian Tobacco.....	Meadows and pastures.....	General and common.....	On all farms.
Ericaceæ.	"*Heath Family.*"			
151. Pyrola elliptica.—*Nutt*.....	Shin leaf.....	Woods.....	General and common	On all farms.
Pyrola chlorantha.*—*Swartz*.....	Small pyrola.....	Woods.....	Rare	W. R. Stevens.

152. Pyrola secunda.—*L.*	One-sided pyrola	Woods	General and common	On all farms.
153. Moneses uniflora.—*L.*	One-flowered pyrola	Woods	Rare	W. R. Stevens, A. Devendorf.
154. Chimaphila umbellata.—*Nutt.*	Pipsissewa, Prince's Pine	Woods	General and common	In all woods.
155. Monotropia uniflora.—*L.*	Indian Pipe	Woods	General but scarce	S. G. Spoor (Van Allen, ten't).
*Aquifoliaceæ.**	"*Holly Family.*"			
Ilex verticillata.*—*L. Gray*	Black Alder	Pastures	Rare	E. Decker.
Plantaginaceæ.	"*Plantain Family.*"			
156. Plantago major.—*L*	Common Plantain	Meadows and Pastures	General and abundant	On all farms.
157. Plantago lanceolata.—*L.*	Rib grass, Rifle grass	Meadows	Rare	A. Jones (abundant).
Primulaceæ.	"*Primrose Family.*"			
158. Lysmachia stricta.—*Ait.*		Pastures	Rare	H. N. Gros, L. Green, Ar. Jones.
159. Lysmachia ciliata.—*L.*		Pastures	Rare	H. N. Gros, L. Green; common on Ar. Jones.
Orobanchaceæ.	"*Broom Rape Family.*"			
160. Conopholis Americana.—*Wallroth*	Squaw or Cancer Root	Woods	Rare	W. R. Stevens, N. N. Schuyler.
Epiphegus Virginiana.*—Bart.	Beech Drops	Woods	General and common	In all woods under beech trees.
Schrophulariaceæ.	"*Fig-wort Family.*"			
161. Verbascum Thapsus.—*L.*	Common Mullein	Pastures	General but scarce	On all farms.
162. Verbascum Blattaria.—*L.*	Moth Mullein	Pastures	Rare	W. R. Stevens, A. Devendorf, M. Wilkes, Fr. Lewis, Jacob Walrath, H. N. Gros.
Linaria vulgaris.*—*Mill.*	Toad-flax, Ramstead, Butter and Eggs.	Door yards and roadsides	Rare	W. R. Stevens, D. Champion, J. H. Saunders, C. Andrews.
163. Schrophularia nodosa.—*L.*		Fence-rows	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, G. Spoor, H. Haupt, S. P. Jones, J. J. Rickardt.
164. Mimulus ringens.—*L.*		Meadows and pastures (wet places).	General but scarce	F. Lewis, S. G. Spoor, H. Haupt, A. Jones, H. Green, P. Baum, J. E. Fox (Smith ten't), N. N, Schuyler.
165. Gratiola Virginiana.—*L.*		Meadows and pastures (wet places).	Rare	N. N. Schuyler.
166. Veronica Americana.—*Schu.*	Amer. Brooklime	Meadows and pastures (wet places).	Rare	W. R. Stevens, J. J. Rickardt, M. Wilkes.
167. Veronica officinalis.—*L.*	Common Speedwell	Pastures	Probably general but scarce	W. R. Stevens, M. Wilkes.
168. Veronica peregrina.—*L.*	Purslane Speedwell, Neck-weed.	Pastures	Rare	W. R. Stevens.
169. Pedicularis Canadensis.—*L*	Common Lousewort, Wood Betony	Woods	Probably general but scarce	W. R. Stevens.
Malampyrum Americanum.*—*Michx*	Cow Wheat	Woods	Probably general but disappears early	W. R. Stevens.
Verbenaceæ.	"*Vervain Family.*"			
170. Verbena hastata.—*L.*	Blue Vervain	Pastures and roadsides	General but scarce	Fr. Lewis, S. G. Spoor, H. Haupt, H. Green, P. Baum, A. Decker, R. Landt, Ed. Simms, E. Decker, G. Bellinger, D. Bellinger, Jno. Snell, H. Peterie, Jos. Snell, G. Spoor, J. J. Rickardt, Ackerman (Donovan ten't), H. N. Gros, A. Miller, L. Green, J. Ostrander.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Verbenaceæ—(Continued).	"*Vervain Family*"—(Continued).			
171. Verbena urticifolia.—*L*.	Nettle-leaved or White Vervain	Pastures and roadsides	General and common	On all farms.
172. Phryma Leptostachya.—*L*.		Pastures	General and probably common	W. R. Stevens, A. Devendorf, H. N. Gros, S. G. Spoor, Jacob Walrath, F. Lewis, H. Haupt.
Labiateæ.	"*Mint Family*."			
173. Mentha viridis.—*L*.	Spearmint	Meadows and pastures (wet places)	General and common	On all farms.
174. Mentha piperita.—*L*.	Peppermint	Meadows and pastures (wet places)	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, M. Wilkes, A. Miller.
175. Mentha Canadensis.—*L*.	Wild Mint	Meadows and pastures (wet places)	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, M. Wilkes, A. Miller, G. Spoor, H. Peterie, Jos. Snell.
176. Lycopus Europæus.—*L*.		Meadows and pastures (wet places)	General and common	On all farms.
177. Origanum vulgare.—*L*.	Wild Marjoram	Roadsides	Rare	W. R. Stevens.
Calamintha Clinopodium.*—*Benth*.		Woods	Rare	W. R. Stevens, A. Devendorf.
178. Collinsonia Canadensis.—*L*.	Rich-weed, Stone-root	Woods	General and common	In all woods.
179. Hedeoma pulegioides.—*Pers*.	Amer. Pennyroyal	Woods	Rare	A. Decker, Jacob Shall.
180. Monarda didyma.—*L*.	Oswego tea	Woods	Rare	A. & P. Cramer.
181. Nepeta cataria.—*L*.	Catnep	Fence-rows and yards	General but scarce	On all farms.
182. Prunella vulgaris.—*L*.	Heal-all	Meadows and pastures	General and abundant	On all farms.
183. Scutellaria laterifolia.—*L*.	Mad-dog, Skull-cap	Pastures (wet places)	Rare	Ed. Simms, Fr. Lewis, S. G. Spoor, H. Haupt.
184. Galeopsis Tetrahit.—*L*.	Common Hemp-nettle	Fence-rows and yards	General and common	On all farms.
185. Leonurus Cardiaca.—*L*.	Common Mother-wort	Fence-rows and yards	Probably general but scarce	W. R. Stevens, Jacob Walrath, H. N. Gros.
Borraginaceæ.	"*Borage Family*."			
186. Symphytum officinale.—*L*.	Common Comfrey	Meadows and pastures (along a brook)	Rare	W. R. Stevens.
187. Lithospermum officinale.—*L*.	Common Gromwell	Pastures	Rare	W. R. Stevens, A. & P. Cramer.
188. Echinospermum Lappula.—*Lehm*.	Stickseed	Pastures	Rare	Mrs. Devendorf (Briggs, tenant).
189. Cynoglossum officinale.—*L*.	Common Hound's tongue	Pastures	General but scarce	On all farms.
190. Cynoglossum Morrisoni.—*D. C*.	Beggar's Lice	Fence-rows and thickets	General but scarce	On all farms.
Hydrophyllaceæ.	"*Water-leaf Family*."			
191. Hyrophyllum Virginicum.—*L*.		Woods	Probably general and common	W. R. Stevens, Fr. Lewis, S. G. Spoor, N. N. Schuyler, A. Jones, A. Decker, Ed. Simms, S. P. Jones, E. Decker.
192. Hydrophyllum Canadense.—*L*.		Woods	Probably general but scarce	W. R. Stevens, Fr. Lewis, H. Haupt, S. G. Spoor, Jacob Walrath, H. N. Gros.

*Convolvulaceæ.**	"*Convolvulus Family.*"			
Calystegia sepium.*—*R. Br*	Hedge Bind-weed	Meadows, bogs and gardens	Rare	H. N. Gros, L. Gros (Ar. Jones, common).
Solanaceæ.	"*Night-shade Family.*"			
193. Solanum nigrum.—*L*	Common Night-shade	Woods	Rare	Fr. Lewis.
Apocynaceæ.	"*Dog Bane Family.*"			
194. Apocynum cannabinum.—*L*	Indian Hemp	Fence-rows	Rare	W. R. Stevens, Jacob Walrath.
Asclepiadaceæ.	"*Milk-weed Family.*"			
195. Asclepias Cornuti.—*Decaisne*	Common Milk-weed	Meadows, pastures and grain-fields	General and abundant	On all farms.
196. Asclepias phytolaccoides.—*Pursh*	Poke Milk-weed	Woods	Rare	W. R. Stevens, A. Devendorf.
Oleaceæ.	"*Olive Family.*"			
Fraxinus Americana.*—*L*	White Ash	Woods	Probably general and common	Jacob Walrath, A. Devendorf, H. N. Gros.
197. Fraxinus sambucifolia.—*Lam*	Black Ash	Swamps	Rare	L. Green.
Aristolochiaceæ.	"*Birth-wort Family.*"			
198. Asarum Canadense.—*L*		Woods	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, Edw'd Simms, S. P. Jones.
Phytolaccaceæ.	"*Poke-weed Family.*"			
199. Phytolacca decandra.—*L*	Common Poke, or Scoke, Garget, Pigeon berry	Fence-rows	General but scarce	W. R. Stevens, A. Decker, Ed. Simms, A. Miller, W. & R. Jones.
Chenopodiaceæ.	"*Goose-foot Family.*"			
200. Chenopodium album.—*L*	Pig-weed, Lamb's quarters	Grain-fields	General but scarce	On all farms.
201. Atriplex hastata.—*L*		Barnyards	Rare	D. Bellinger.
Amaranthaceæ.	"*Amaranth Family.*"			
202. Amaranthus retroflexus.—*L*	Pig-weed	Grain-fields	General but scarce	On all farms.
Polygonaceæ.	"*Buckwheat Family.*"			
203. Polygonum Pennsylvanicum.—*L*		Grain-fields	Rare	Fr. Lewis.
Polygonum Persicana.*—*L*	Lady's Thumb	Grain-fields	General and common	On all farms.
204. Polygonum Hydropiper.—*L*	Smart Weed	Wet places	General and common	On all farms.
205. Polygonum Virginianum.—*L*		Woods	Rare	A. Decker.
206. Polygonum aviculare.—*L*	Knot grass, Door-weed	Pastures and yards	General and common	On all farms.
207. Polygonum aviculare, var. erectum.—*Roth*		Yards	General and common	On all farms.
208. Polygonum sagittatum.—*L*	Arrow-leaved Tear-thumb	Wet places	Rare	A. Decker.
209. Polygonum convolvulus.—*L*	Black bind-weed	Grain-fields	General and common	On all farms.
210. Polygonum cilinode.—*Michx*		Thickets	Rare	G. Bellinger.
211. Rumex crispus.—*L*	Curled Dock	Meadows and pastures	General and common	On all farms.
212. Rumex obtusifolius.—*L*	Bitter Dock	Meadows and pastures	General but scarce	On all farms.
213. Rumex Acetosella.—*L*	Field or Sheep Sorrel	Meadows and pastures	General but scarce	On all farms.
*Lauraceæ.**	"*Laurel Family.*"			
Lindera Benzoin.*—*Meisner*		Woods	Probably general but scarce	N. N. Schuyler.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Callitrichaceæ.	"*Water Star-wort Family.*"			
214. Callitriche verna.—*L.*	.....	Ditches	Rare	L. Green.
Callitriche heterophylla.*—*Pursh.*	.....	Pastures	Rare	L. Green.
Euphorbiaceæ.	"*Spurge Family.*"			
215. Euphorbia hypercifolia.—*L.*	Large spotted Spurge	Pastures	Rare	A. Jones, N. N. Schuyler, M. Wilkes, Fr. Lewis.
216. Euphorbia maculata.—*L.*	Spotted Spurge	Pastures	Rare	A. Jones, Fr. Lewis.
217. Acalypha Virginica.—*L.*	.....	Pastures and grain fields	General and common	On all farms.
Urticaceæ.	"*Nettle Family.*"			
Ulmus Americana.*—*L.*	Am. or White Elm	Pastures	General and common	On all farms.
218. Urtica gracilis.—*Ait.*	Tall wild Nettle	Fence-rows	General, but scarce	W. R. Stevens, Fr. Lewis, H. Green, J. E. Fox (Smith ten't), E. Decker, John Smith, M. Wilkes.
219. Urtica urens.—*L.*	Small stinging Nettle	Barnyards	Rare	J. E. Fox (Smith ten't).
220. Laportea Canadensis.—*Gaudich.*	Wood Nettle	Woods	General and common	In all woods.
221. Pilea pumila.—*Gray*	Rich-weed	Shady wet places and woods	General, but scarce	In all woods.
222. Cannabis sativa.—*L.*	.....	Roadsides and barnyards	Rare	J. E. Fox, near Newville Cheese Factory.
223. Humulus Lupulus.—*L.*	Hop	Fence-rows	Rare	W. R. Stevens.
*Juglandaceæ.**	"*Walnut Family.*"			
Juglans cinera.*—*L.*	Butternut	Meadows, pastures and woods	Probably general, but scarce	W. R. Stevens, A. Devendorf, M. Wilkes, A. D. Hess, C. Andrews, Fr. Lewis.
Carya alba.*—*Nutt.*	Shell-bark or Shag-bark, Hickory	Woods	Rare	W. R. Stevens, A. Devendorf, M. Wilkes (only on river road).
Carya amara.*—*Nutt*	Bitter-nut or Swamp Hickory.	Woods	Rare	W. R. Stevens, H. N. Gros (only on river road).
Cupuliferæ.	"*Oak Family.*"			
Quercus alba.*—*L.*	White Oak	Woods	Rare	W. R. Stevens, A. Devendorf (river road only).
Quercus rubra.*—*L.*	Red Oak	Woods	Rare	W. R. Stevens, A. Devendorf, A. Jones, N. N. Schuyler.
Fagus ferruginea.*—*Ait.*	American Beech	Meadows, pastures, grain-fields and woods	General and common	On all farms.
Ostrya Virginica.*—*Willd.*	Am. Hop, Hornbeam, Iron-wood	Woods	General and common	On all farms.
224. Carpinus Americana.—*Michx.*	Am. Hornbeam, Blue or Water Beech	Woods	General and common	On all farms.

*Betulaceæ.**	"*Birch Family.*"			
Betula lenta.*—*L.*	Black Birch	Woods	General and common	On all farms.
Salicaceæ.	"*Willow Family.*"			
225. Salix humilis.—*Marshall*	Low bush Willow	Along streams and wet places	General and common	On all farms.
226. Salix sericea.—*Marshall*	Silky-leaved Willow	Along streams and wet places	General and common	On all farms.
227. Salix cordata.—*Muhl.*	Heart-leaved Willow	Along streams and wet places	General and common	On all farms.
228. Salix alba.—*L.*	White Willow	Along streams and wet places	General and common	On all farms.
229. Populus tremuloides.—*Michx.*	American Aspen	Pastures and woods	Rare	S. G. Spoor, L. Green.
Coniferæ.	"*Pine Family.*"			
Pinus Strobus.*—*L.*	White Pine	Woods	Rare	W. R. Stevens, A. Devendorf, Jacob Walrath.
Abies Canadensis.*—*Michx*	Hemlock Spruce	Woods	General and very common	In all woods.
230. Thuja occidentalis.—*L.*	Am. Arbor vitæ	Swamps and woods	Rare	W. R. Stevens, H. N. Gros.
231. Taxus baccata.—*L.* var. Canadensis.—*Gray*	Ground Hemlock, American Yew	Woods	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, E. Simms, S. P. Jones, Jos. Snell.
Araceæ.	"*Arum Family.*"			
232. Arisæma triphyllum.—*Torr*	Indian Turnip	Woods	Probably general but scarce	W. R. Stevens, Jacob Walrath, H. N. Gros, A. Devendorf, Fr. Lewis, S. G. Spoor, A. Decker, Edward Simms, S. P. Jones, G. Bellinger, D. Bellinger, Joseph Snell.
233. Symplocarpus fœtidus.—*Salisb.*	Skunk Cabbage	Meadows, pastures and bogs	Rare	H. N. Gros, L. Green.
Lemnaceæ.	"*Duck-Weed Family.*"			
234. Lemna minor.—*L.*		Ditches (floating)	Rare	H. N. Gros, L. Green, Mrs. Devendorf (Briggs, tenant), A. Decker; abundant on A. Devendorf.
235. Lemna polyrrhiza.—*L.*		Ditches (floating)	Rare	H. N. Gros, L. Green, Mrs. Devendorf (Briggs, tenant); abundant on A. Devendorf.
Typhaceæ.	"*Cat-Tail Family.*"			
236. Typha latifolia.—*L.*	Common Cat-Tail	Wet places	Rare	A. Decker, Mrs. Devendorf (Briggs, tenant), Fr. Lewis, S. G. Spoor.
237. Sparganum euricarpum.—*Englm.*		Wet places	Rare	H. N. Gros, L. Green, J. E. Fox (Smith, tenant), Mrs. Devendorf (Briggs, tenant).
238. Sparganum simplex.—*Huds.*		Wet places	Rare	H. N. Gros, A. Decker.
Alismaceæ.	"*Water Plantain Family.*"			
Alisma Plantago.*—*L.*	Water Plantain	Ditches and wet places	Rare	H. N. Gros.
239. Sagittaria variabilis.—*Englm.*		Ditches and wet places	Rare	H. N. Gros.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Orchidaceæ.	"*Orchis Family.*"			
240. Habenaria hyperborea.—*R. Br.*		Woods	Rare	Fr. Lewis.
241. Habenaria Hookeri		Woods	Rare	W. R. Stevens.
242. Habenaria psycodes.—*Gray*		Swamps	Rare	L. Green.
Habenaria flava*		Meadows	Rare	L. Green.
243. Goodyera repens.—*R. Br.*		Woods	General but scarce	In all woods.
Goodyera pubescens.*—*R. Br.*		Woods	Rare	W. R. Stevens, A. Devendorf.
244. Spiranthes latifolia.—*Torr.*		Pastures (wet places)	Rare	Near Fink's basin Cheese Factory.
245. Pogonia verticellata.—*Nutt.*		Woods	Rare	W. R. Stevens.
Cypripedium pubescens.*—*Willd.*	Large yellow Lady's slipper	Woods	Rare	W. R. Stevens.
Iridaceæ.	"*Iris Family.*"			
246. Sisyrinchium Bermudiana.—*L.*	Blue-eyed Grass	Meadows	Rare	J. F. Bellinger.
Smilaceæ.	"*Smilax Family.*"			
247. Smilax herbacea.—*L.*	Carrion Flower	Fence-rows	Rare	W. R. Stevens.
Liliaceæ.	"*Lily Family.*"			
248. Trillium erectum.—*L.*	Birthroot	Woods	General and common	Jacob Walrath, Fr. Lewis, S. G. Spoor, H. Haupt.
249. Trillium grandiflorum.—*Salisb.*	Large white Trillium	Woods	Rare	H. N. Gros.
250. Medeola Virginica.—*L.*	Ind. Cucumber Root	Woods	Probably general but scarce	Fr. Lewis, S. G. Spoor, H Haupt, Edward Simms, S. P. Jones.
251. Uvularia grandiflora.—*Smith*	Large flowered Bellwort	Woods	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt.
252. Uvularia sessefifolia.—*L.*	Sessile-leaved Bellwort	Woods	Rare	E. Decker, A. Decker.
253. Streptopus roseus.—*Michx.*		Woods	Rare	Fr. Lewis.
254. Polygonatum giganteum.—*Diebrich.*	Great Solomon's Seal	Woods	Rare	W. R. Stevens.
255. Smilacina racemosa.—*Desf.*	False Spikenard	Woods	Probably general but scarce	W. R. Stevens, A. Devendorf, Fr. Lewis, H. Haupt, S. G. Spoor, Ed. Simms, E. Decker.
256. Smilacina bifolia.—*Ker*	Two-leaved Solomon's Seal	Woods	Probably general but scarce	W. R. Stevens, A. Devendorf, Fr. Lewis, H. Haupt, S. G. Spoor, Ed. Simms, E. Decker, A. Jones, A. Decker.
257. Lilium Philadelphicum.—*L.*	Wild orange-red Lily	Woods	Rare	W. R. Stevens.
258. Lilium Canadense.—*L.*	Wild yellow Lily	Meadows	Rare	L. Green.
Juncaceæ.	"*Rush Family.*"			
259. Juncus effusus.—*L.*	Common or Soft Rush	Meadows and pastures (wet places)	General but scarce	On all farms.
260. Juncus effusus, var. conglomeratus.		Roadsides	Rare	Near Fink's basin.
261. Juncus effusus, var. gracilis		Roadsides	General and common	L. Green, H. N. Gros.
262. Juncus bufonius.—*L.*		Pastures	Rare	W. R. Stevens, near Fink's basin.
263. Juncus tenuis.—*Willd.*		Meadows and pastures	General and common	On all farms.

Cyperaceæ.	"*Sedge Family.*"			
264. Cyperus phymatodes.—*Muhl*		Gardens	Rare	H. N. Gros.
Cyperus diandrus.*—*Torr*		Pastures (wet places)	Rare	Fr. Lewis.
265. Cyperus strigosus.—*L*		Pastures (wet places)	General and common	On all farms.
266. Eleocharis obtusa.—*Schultes*		Meadows, pastures and wet places	General and common	On all farms.
267. Eleocharus palustris.—*R. Br*		Meadows, pastures and wet places	General and common	On all farms.
268. Scirpus validus.—*Vahl*		Wet places	Rare	H. N. Gros, L. Green, Mrs. Devendorf (Briggs, tenant).
269. Scirpus sylvaticus.—*L*		Meadows and wet places	Rare	L. Green.
270. Scirpus atrovirens.—*Muhl*		Meadows and pastures	General and common	On all farms.
271. Scirpus lineatus.—*Muhl*		Meadows and wet places	Rare	A. J. & S. Stafford.
272. Scirpus Eriphorum.—*Michx*	Wool grass	Meadows and pastures	General and common	On all farms.
273. Carex polytrichoides.—*Muhl*		Wet places	Probably general and common	Near Fink's basin.
274. Carex teretiuscula.—*Good*		Meadows and pastures	General and common	On all farms.
275. Carex vulpinoidea.—*Michx*		Meadows and pastures	General and common	On all farms.
276. Carex parganoides.—*Muhl*		Meadows	Rare	W. R. Stevens, A. Devendorf.
277. Carex cephaloidea.—*Boot*		Meadows	Rare	A. Devendorf.
278. Carex rosea.—*Schk*		Meadows and woods	Probably general but scarce	W. R. Stevens, A. Devendorf, L. Green, Jacob Walrath, H. N. Gros.
279. Carex rosea, var. radiata.—*Dew*		Meadows, pastures, woods and bogs	Rare	W. R. Stevens, H. N. Gros, L. Green.
280. Carex Deweyana.—*Schw*		Woods	Rare	W. R. Stevens, A. Devendorf.
281. Carex scoparia.—*Schw*		Meadows and pastures (wet places)	General but scarce	On all farms.
282. Carex scoparia, var. (?)		Meadows	Rare	A. Devendorf.
283. Carex straminea.—*Schk* var. typica.—*Boot*		Meadows	Rare	John Smith.
284. Carex straminea, var. tenera.—*Boot*		Meadows and pastures	General but scarce	On all farms.
285. Carex crinita.—*Lam*		Pastures	Rare	Ed. Simms, A. J. & S. Stafford.
286. Carex granularis.—*Muhl*		Pastures	Rare	A. Devendorf, Jacob Walrath, L. Green, H. N. Gros.
287. Carex pallescens.—*L*		Meadows	Rare	A. Devendorf.
288. Carex gracillima.—*Schw*		Pastures	Rare	L. Green, H. N. Gros (common on both).
289. Carex plantaginea.—*Lam*		Woods	General and common	In all woods about Newville.
290. Carex laxiflora.—*Lam*		Woods	Probably general and common	W. R. Stevens.
291. Carex laxiflora, var plantaginea.—*Boot*		Woods	Probably general and common	W. R. Stevens.
292. Carex Hitchcockiana.—*Dew*		Woods	General but scarce	W. R. Stevens.
293. Carex Pennsylvanica.—*Lam*		Woods	Rare	W. R. Stevens, Jacob Walrath.
294. Carex arctata.—*Boot*		Woods	Rare	Fr. Lewis, R. Landt, A. Decker.
295. Carex hystricina.—*Willd*		Meadows and pastures (wet places).	General but scarce	H. N. Gros, L. Green, W. R. Stevens, A. Devendorf, Fr. Lewis, H. Haupt, S. G. Spoor, J. E. Fox, (Smith, ten't), D. Bellinger.

B.—(Continued).

CLASSIFICATION.	Common name.	Habitat.	Frequency.	Where found or noted.
296. Carex tentaculata.—*Muhl*		Meadows and pastures (wet places).	General but scarce	On all farms.
297. Carex lupulina.—*Muhl*		Swamps.	Rare	L. Green.
298. Carex retrorsa.—*Schw*		Swamps.	Rare	L. Green.
Gramineæ.	"*Grass Family.*"			
299. Leersia oryzoides.—*Swarts*	Rice Cut-grass	Ditches and wet places	General and common	On all farms.
300. Phleum pratense.—*L*	Timothy	Meadows and pastures	General and abundant	On all farms.
Villa vaginæflora.*—*Torr*		Roadsides	Rare	W. R. Stevens.
301. Agrostis vulgaris.—*With*	Red Top	Meadows and pastures	General and abundant	On all farms.
302. Agrostis alba.—*L*	Fioren or White Bent grass	Meadows and pastures	Rare	H. N. Gros.
303. Agrostis scabra.—*Willd*	Hair-grass	Meadows and pastures	General but scarce	On all farms.
304. Cinna arundinacea.—*L.* var pendula.—*L.*		Woods	Rare	A. Decker.
305. Muhlenburgia Mexicana.—*Trin*		Pastures	Rare	E. Decker, N. N. Schuyler, Fr. Lewis.
Muhlenburgia diffusa.*—*Schrever*	Drop-seed, Nimble Will	Pastures and woods	Rare	M. Wilkes, —— Peck.
306. Brachyletrum aristatum.—*Beauv*		Woods	Rare	W R Stevens.
307. Oryzopsis asperifolia.—*Michæ*		Woods	Rare	W. R. Stevens, A. Devendorf.
308. Oryzopsis melanocarpa.—*Muhl*		Woods	Rare	A. J. & S. Stafford.
309. Dactylis glomerata.—*L*	Cock's foot, Orchard grass	Pastures	Rare	W. R, Stevens, H. Green.
310. Eatonia Pennsylvanica.—*Raf*		Wet places	General but scarce	W. R. Stevens, A. Devendorf, Fr. Lewis.
311. Glyceria nervata.—*Trin*		Wet places	General and common	On all farms.
312. Glyceria aquatica.—*Smith*	Reed Meadow grass	Meadows and pastures	General but scarce	On all farms.
313. Glyceria fluitans.—*R. Br*		Meadows and pastures.	Rare	A. Decker.
314. Poa annua.—*L*	Low spear grass	Pastures and yards	General but scarce	On all farms.
315. Poa compressa.—*L*	Wire or blue grass, Kentucky blue grass	Meadows and pastures	General and common	On all farms.
316. Poa serotina.—*Ehrhart*	False Red Top, Foul meadow Grass.	Meadows and pastures	General and common	On all farms.
317. Poa pratensis.—*L*	Green or Common Meadow Grass	Meadows and pastures	General and abundant	On all farms
318. Poa trivialis.—*L*	Rough meadow grass	Wet places	Rare	Near Fink's basin.
319. Poa pungens.—*Nutt*		Woods	Rare	W. R. Stevens, A. Devendorf.
320. Festuca ovina.—*L*	Sheep's fescue grass	Pastures	Rare	W. R. Stevens.
321. Festuca ovina, var. (?)		Pastures	Rare	W. R. Stevens.
322. Festuca elatior, var. pratensis.—*L*		Meadows and pastures	General and common	On all farms.
323. Festuca nutans.—*Will*		Woods	General but scarce	W. R. Stevens, Jacob Walrath.
324. Cynosurus cristatus.—*W*	Crested Dog's Tail	Pastures	Rare	W. R. Stevens.
325. Bromus secalinus.—*L*	Cheat or Chess	Grain-fields	Rare	J. Wagner (among wheat).
326. Bromus racemosus.—*L*	Upright Chess	Meadows	Rare	W. R. Stevens.
327. Triticum repens.—*L*	Couch, Quick, Quack or Quitch grass	Meadows, pastures and grain-fields	General and common	On all farms.
328. Gymnostichum Hystrix.—*Schreb*		Woods	Rare	W R. Stevens.

329. Danthonia spicata.—*Beuv*	Wild Oat grass	Meadows and pastures	Rare	W. R. Stevens, W. Bellinger, Jno. Smith, Mrs. Devendorf (Briggs, ten't).
330. Danthonia compressa.—*C. F. A*		Woods	Rare	W. R. Stevens.
331. Avena striata.—*Michx*		Woods	Rare	W R. Stevens.
332. Trisetum subspicatum, var. molle.—*Beuv*		Woods	Rare	A. Devendorf.
333. Aira cæspitosa.—*L*		Pastures	Rare	W. R. Stevens.
334. Anthoxanthum odoratum.—*L*	Sweet vernal grass	Meadows and pastures	Rare	W. R. Stevens, J. J. Rickardt.
335. Panicum sanguinale.—*L*	Common Crab or Finger grass.	Pastures	General and abundant	On all farms.
336. Panicum capillare.—*L*	Old witch grass	Grain fields	General and common	On all farms.
337. Panicum latifolium.—*L*		Woods	Rare	W. R Stevens.
338. Panicum dichotomum.—*L*		Pastures	Rare	E. Decker, M. Wilkes, S. Miller, E. Coville.
339. Panicum depauperatum.—*Muhl*		Meadows	Rare	W. R. Stevens.
340. Panicum Crus-galli.—*L*	Barnyard grass	Yards and grain fields	General and common	On all farms.
341. Setaria glauca.—*Beauv*	Foxtail grass	Meadows, pastures and grain fields	General and abundant	On all farms.
342. Setaria viridis.—*Beauv*	Green Foxtail or Bottle grass.	Pastures and grain fields	General but scarce	On all farms.
Equisetaceæ.	"*Horse Tail Family.*"			
343. Equisetum arvense.—*L*	Common Horse-tail	Grain fields and woods	Probably general but scarce	F. Lewis, S. G. Spoor, H. Haupt, W. R. Stevens, A. Decker, E. Decker, G. Bellinger.
344. Equisetum sylvaticum.—*L.*		Woods	Rare	E. Decker, H. N. Gros.
345. Equisetum limosum.—*L.*		Ditches	Rare	L. Green.
Equisetum hyemale.*—*L*	Scouring Rush, Shave grass	Woods	Rare	Fr. Lewis, H. Haupt.
Filices.	"*Ferns.*"			
346. Adiantum pedatum.—*L*	Maiden's Hair	Woods	General and common	In all woods.
347. Pteris aquilina.—*L*	Common Brake	Thickets and woods	General but scarce	W. R. Stevens, H. Haupt, N. N. Schuyler.
348. Asplenium angustifolium.—*Michx*		Woods	Rare	W. R. Stevens, Jacob Walrath, H. Haupt, Ed. Simms, R. Landt.
349. Asplenium thelypteroides.—*Michx*		Woods	Rare	W. R. Stevens, Jacob Walrath, A. Jones, H. Haupt, S. G. Spoor, Fr. Lewis, Edward Simms, A. Decker, R. Landt.
350. Asplenium Filix-fæmina.—*Bernh*		Woods	General and common	W. R. Stevens, Jacob Walrath, A. Jones, H. Haupt, S. G. Spoor, Fr. Lewis, A. Decker, R. Landt, E. Decker, G. Bellinger.
351. Phegopteris hexagonoptera.—*Fee*		Woods	Probably general but scarce	W. R. Stevens, Fr. Lewis, S. G. Spoor, H. Haupt, S. G. Spoor (Van Allen ten't).
352. Phegopteris Dryopteris.—*Fee*		Woods	Rare	W. R. Stevens, Fr. Lewis.
Aspidium Thelypteris.*—*Swartz*		Woods	Rare	Fr. Lewis, S. G. Spoor, A. Decker.
353. Aspidium Noveboracense.—*Swartz.*		Woods	Rare	Fr. Lewis, S. G. Spoor, H. Haupt.
354. Aspidium spinulosum.—*Swartz*		Woods	Probably general and common	Fr. Lewis, S. G. Spoor, H. Haupt, R. Landt, A. Decker, E. Decker, W. R. Stevens.

B.—(Continued).

CLASSIFICATION.	Common Name.	Habitat.	Frequency.	Where found or noted.
Filices.—(Continued.)	"*Ferns.*"—(Continued.)			
355. Aspidium Goldianum—*Hook.* var. (?)	.....	Woods.....	Rare	W. R. Stevens.
356. Aspidium marginale.—*Swartz*.....	.....	Woods.....	Rare	Fr. Lewis, W. R. Stevens, H. Haupt, S. G. Spoor, Ed. Simms, E. Decker, G. Bellinger.
357. Aspidium acrostichoides.—*Swartz*..	.....	Woods.....	Rare	Fr. Lewis, H. Haupt, S. G. Spoor, A. Decker, R. Landt.
358. Cystopteris bulbifera.—*Bernh*.....	.....	Shaded ravines and woods..	Probably general and common.	Fr. Lewis, S. G. Spoor, H. Haupt, A. Decker, Ed. Simms, S. P. Jones.
359. Struthiopteris Germanica.—*Willd*..	.....	Meadows and pastures (wet places).....	Probably general but scarce...	W. R. Stevens, A. Devendorf, Fr. Lewis, S. G. Spoor, H. Haupt, A. Decker.
360. Onoclea sensibilis.—*L*.....	.....	Damp thickets and woods...	Probably general but scarce...	W. R. Stevens, Jacob Walrath, Fr. Lewis, S. G. Spoor, H. Haupt, A. Decker, R. Landt, E. Decker.
361. Dicksonia punctilobula.—*Kunze*....	.....	Pastures and dry thickets...	Rare	Fr. Lewis, S. G. Spoor, H. Haupt, R. Landt, S. G. Spoor (Van Allen ten't), A. Decker, Edward Simms, A. Jones, E. Decker, G. Bellinger.
362. Osmunda regalis.—*L*.....	Flowering Fern.....	Swamps	Rare	L. Green, H. N. Gros.
363. Osmunda Claytoniana.—*L*.....	.....	Swamps	Rare	L. Green.
Osmunda cinnamomea.*—*L*.....	Cinnamon Fern.....	Swamps	Rare	L. Green, near Fink's Basin.
364. Botrychium Virginicum.—*Swartz*..	.....	Woods.....	Probably general and common.	W. R. Stevens, A. Devendorf, Jacob Walrath.
Botrychium lunarioides.*—*Swartz*.	.....	Woods.....	Rare	J. J. Rickardt.
Lycopodiaceæ.	"*Club Moss Family.*"			
365. Lycopodium lucidulum.—*Dich*.....	.....	Woods.....	Rare	W. R. Stevens.
366. Lycopodium clavatum.—*L*.....	.....	Woods.....	Rare	W. R. Stevens.
Selaginella selaginoides.*—*Gray*...	.....	Woods.....	Rare	Near Fink's basin, W. R. Stevens.

(E.)

Report on Grasses constituting the Hay.

[This mark (*) denotes that a trace only of Ergot was discernible.]

Per centage of Abortions to each Farm.		FOUND WITH ERGOT (CLAVICEPS PURPUREA. — *Tuls.*) UPON THEM.																				UNAFFECTED WITH ERGOT.						
		ELEOCHARIS PALUSTRIS.		PHLEUM PRATENSE.		AGROSTIS VULGARIS.		GLYCERIA NERVATA.		POA SEROTINA.		POA PRATENSIS.		FESTUCA ELATIOR, *var.* PRATENSIS.		BROMUS SECALINUS.		TRITICUM REPENS.		DANTHONIA SPICATA.		TRIFOLIUM PRATENSE.	TRIFOLIUM REPENS.	AGROSTIS SCABRA.	DACTYLIS GLOMERATA.	GLYCERIA AQUATICA.	POA COMPRESSA.	ANTHOXANTHUM ODORATUM.
		Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.
0 per ct..	Andrew Devendorf	..	..	.30	*	.15	*	.005	.75	*	*	.10	.75	*	*	..	..	.025	.75	..	..	.30	.05	....	....	....	..	...
.10 per ct..	Wm. R. Stevens.....	..	..	.20	..	.15	..	*	..	† *	† *	.25	.25	*	*	..	..	.03	.75	*	..	.20	.02	....	*	....	..	*
.11 per ct..	Jonas Walrath	..	..	.35	..	.05	..	..	..	..	..	.10	.05	..	..	..	..	.03	‡	..	..	.40	.02	....	....	....	..	...
0 per ct..	Jacob Walrath	† *	† *	.30	..	.10	..	..	..	..	..	.10	.05	..	..	..	..	.015	.50	..	..	.45	....	....	....	....	..	...
0 per ct..	Mrs. Devendorf (Briggs tenant)	..	..	.40	..	.25	..	.05	..	*	..	.15	.05	*	..	..	..	.01	.75	†.05	† *	.05	.02	....	....	*	..	...
0 per ct..	J. E. Fox.....	..	..	.50	..	.05	..	..	..	.002	..	.15	.01	..	..	..	..	.005	.50	..	..	.05	.25	....	....	....	..	...
0 per ct..	Lester Green	..	..	.25	..	.05	..	.05	*	.05	..	.25	.002	*	*	..	..	*	.50	..	..	.10	.15	....	....	*	..	...
0 per ct..	H. N. Gros	..	..	.45	..	*	..	..	..	..	..	.25	..	*	*	..	..	.01	.50	..	..	.15	.10	....	....	....	..	...
0 per ct..	Arthur Jones.....	..	..	.45	..	.02	..	..	..	..	..	*	..	..	..	..	..	.40	.50	..	..	.05	*	....	....	....	..	...
.11 per ct..	E. Miller	..	..	.35	..	.10	..	..	..	*	..	.05	..	*	*	..	..	.02	.50	..	..	.40	.10	....	....	....	..	...
0 per ct..	Jno. Smith	..	..	.30	..	..	..	..	..	*	*	.15	*	..	..	..	..	.01	.50	..	..	.25	.20	....	....	....	..	...
.06 per ct..	Wm. Davy.....	..	..	.35	..	.05	..	..	..	.10	..	.05	*	..	..	..	..	*	.50	..	..	.40	.05	....	....	....	..	...
0 per ct..	Peter Davy	Hay	cut	..	..	..	..	..	..	..	..	?	*	..	..	..	..	..	..	..	..	....	....	....	....	....	..	...
0 per ct..	George Rice	..	..	.35	..	.15	..	..	..	.01	..	.03	..	..	..	..	..	.005	.50	..	..	.40	.08	....	....	....	..	...
.04 per ct..	J. I. Shall	..	..	.35	..	.05	..	..	..	*	*	.05	..	..	..	..	..	*	.05	..	..	.50	.05	....	....	....	*	...
.05 per ct..	Jacob Dillenback.....	..	..	.20	..	.05	..	..	..	.01	..	.15	..	.01	*	..	..	.01	.40	..	..	.40	.15	....	....	*	..	...
.10 per ct..	Wm. Green.....	..	..	.30	..	.02	..	..	..	.02	..	.25	..	.005	*	..	..	.03	.20	..	..	.30	.10	....	....	....	..	...
0 per ct..	Jas. Bellinger	..	..	.35	..	.01	..	..	..	*	..	.15	..	..	..	..	..	.005	.50	..	..	.45	....	....	....	....	..	...

E.—(Continued).

Per centage of Abortions to each Farm.		FOUND WITH ERGOT (CLAVICEPS PURPUREA.—*Tuls.*) UPON THEM.																				UNAFFECTED WITH ERGOT.						
		ELEOCHARIS PALUSTRIS.		PHLEUM PRATENSE.		AGROSTIS VULGARIS.		GLYCERIA NERVATA.		POA SEROTINA.		POA PRATENSIS.		FESTUCA ELATIOR, *var.* PRATENSIS.		BROMUS SECALINUS.		TRICTICUM REPENS.		DANTHONIA SPICATA.		TRIFOLIUM PRATENSE.	TRIFOLIUM REPENS.	AGROSTIS SCABRA.	DACTYLIS GLOMERATA.	GLYCERIA AQUATICA.	POA COMPRESSA.	ANTHOXANTHUM ODORATUM.
		Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.
0 per ct..	Horace Bellinger	..	..	.40	..	.15	..	..	..	*	..	.10	..	*	..	..	..	.005	.75	..	..	.25	.15	....	....	....	..	...
0 per ct..	Levi Walrath (1st)	..	..	.55	..	.10	..	.01	..	.02	..	.10	..	..	..	..	..	*	.75	..	..	.15	.10	* *	....	....	.01	...
0 per ct..	Wash'n Bellinger	..	..	.60	..	*	..	*	..	.02	..	.20	..	..	..	..	..	*	.75	*	..	.07	.10	* *	....	....	..	...
0 per ct..	J. W. Davy.....	..	..	.50	..	.15	..	..	..	*	..	.05	..	*	..	..	..	.015	.20	..	..	.25	.05	....	....	....	..	...
0 per ct..	D. Cronkhite	..	..	.20	..	.30	..	..	..	.02	..	.15	..	..	..	..	..	.03	.75	..	..	.20	.10	....	....	....	..	...
0 per ct..	Jas. H. Cronkhite	.	..	.80	..	.05	..	*	..	..	..	.03	..	*	..	..	..	..	..	..	..	.07	.05	....	....	....	.	...
0 per ct..	Jonas Cronkhite.....	..	..	.30	..	.15	..	.025	..	..	..	.10	..	.05	..	..	..	.015	.20	..	..	.20	.20	....	....	....	..	...
0 per ct..	Peter B. Smith	..	..	.30	..	.30	..	..	..	..	..	..	..	*	*	..	..	*	.10	..	..	.25	.05	*	....	....	..	...
0 per ct..	R. Klock	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	...	....	..	...
0 per ct..	Wm. Duesler	..	..	.40	..	.05	..	..	..	..	..	..	..	.07	*	..	..	.01	.05	..	..	.40	.05	....	....	....	..	...
0 per ct..	J. & S. Clark	..	..	.40	..	.04	..	..	..	..	..	.10	..	..	..	..	..	.02	.10	..	..	.35	.10	....	....	....	.02	...
0 per ct..	L. Dillenback.....	..	..	.40	..	.10	..	..	..	.01	*	.05	*	*	*	..	..	.03	.75	..	..	.35	.05	....	....	*	..	*
0 per ct..	D. Klock	Hay	cut	..	..	..	..	..	..	..	..	..	..	*	*	..	..	*	.50	..	..	....	....	....	....	....	..	...
.28 per ct..	J. N. Casler	..	..	.65	..	.02	..	..	..	*	..	..	..	.01	*	..	..	.02	.25	..	..	.25	.05	....	....	....	..	...
0 per ct..	D. Harrad	..	..	.40	..	.08	..	*	..	..	..	.10	..	*	..	..	..	.01	.50	..	..	.20	.10	....	....	....	..	...
.28 per ct..	R. Landt	..	..	.50	..	.05	..	..	..	..	..	.05	*	.04	.01	..	..	.03	.50	..	..	.30	.05	....	....	....	..	...
.18 per ct..	A. Schuyler	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	...
0 per ct..	Jno. Shall	..	..	.30	..	.10	..	..	..	..	..	.08	*	*	*	..	..	.02	.50	..	..	.45	*	....	....	....	..	...
0 per ct..	Greene & Ostrander...	..	..	.40	..	.05	..	..	..	..	..	.12	.05	*	.05	..	..	.04	.25	..	..	.35	.01	....	....	....	..	...
.05½ pr ct..	M. Walrath.....	..	..	.40	..	.03	..	..	..	..	..	.15	..	.005	..	..	..	*	.50	..	..	.30	.05	....	....	....	..	...
0 per ct..	Mrs. Walrath.....	..	..	.35	..	.10	..	..	..	..	..	.10	..	..	..	..	.	.005	.50	..	..	.45	....	....	....	....	..	...
0 per ct..	Alex. Fox.....	..	..	.50	..	.10	Re	port	on	4 ac	res	.07	.90	..	..	..	..	.015	.50	..	..	.25	.05	....	....	....	..	...
0 per ct..	J. E. Fox (Smith ten't)	..	..	.30	..	.10	..	..	..	*	..	.15	..	.02	.05	.	..	.005	.10	..	..	.35	.10	....	....	....	..	...
0 per ct..	Herkimer Green	..	..	.60	..	.05	..	..	..	..	..	.05	..	..	..	..	..	*	.50	..	..	.25	.05	....	*	....	..	...

0 per ct..	A. J. & S. Stafford.....	..	..	.20	..	.25	..	.05	.15	.03	..	.02	.20	..	..	..	..	.02	.50	..	..	.20	.20	*	....	*	*	..
0 per ct..	Jacob Shall.....	..	..	.35	..	.05	..	..	..	..	..	.10	..	..	..	..	..	*	.50	..	..	.40	.05	....	....	....	*	..
0 per ct..	P. Shall.....	..	..	.45	..	.25	..	..	..	..	..	.03	..	*	..	..	..	.02	.75	..	..	.20	.01	*	....	....	.01	..
0 per ct..	S. S. Doxtader.....	..	..	.40	..	.30	..	.01	.01	..	..	.02	.01	..	..	..	..	.02	.75	..	..	.20	.02	....	....	....	..	..
0 per ct..	Lev. Devendorf.... ...	..	..	.30	..	*	..	..	..	*	..	.03	..	..	..	..	..	*	..	..	..	.35	.15	....	....	....	..	..
10 per ct..	M. Wilkes.....	..	..	.30	..	.05	..	..	..	.01	..	.10	..	*	..	..	..	.02	.75	..	..	.40	.05	....	....	....	..	..
.14 per ct..	A. D. Hess	..	..	.45	..	.01	..	..	..	*	..	.10	..	*	.10	..	..	.02	.50	..	..	.30	.10	....	....	....	..	..
0 per ct..	J. P. Eysiman	..	..	.40	..	.10	..	*	..	*	..	.10	..	*	..	..	..	*	.10	..	..	.30	.10	....	....	....	..	..
.77 per ct..	J. F. Bellinger.....	..	..	.30	..	.30	..	*	..	*	.02	.05	..	*	.50	..	..	*	.05	..	..	.10	.15	....	....	....	..	..
0 per ct..	M. Peck	..	..	.45	..	.10	..	..	..	*	..	.05	..	*	..	..	..	*	*	..	..	.35	*	....	....	....	..	..
.08 per ct..	S. Miller.....	..	..	.40	..	.15	..	..	..	.05	..	.10	..	*	..	..	..	*	.50	..	..	.30	*	....	....	....	..	..
0 per ct..	J. Gardinier.....	..	..	.35	..	.15	..	..	..	*	..	.05	..	.05	.05	..	..	*	*	..	..	.25	.05	....	....	....	..	..
.04 per ct..	N. Stafford	..	..	.30	..	.15	..	..	..	*	..	.01	..	..	..	..	..	.05	*	..	..	.30	.05	.02	....	....	*	..
0 per ct..	E. Coville	..	..	.30	..	.10	..	*	..	*	..	.10	..	*	..	..	..	*	*	..	..	.30	.10	....	....	....	..	..
0 per ct..	C. Andrews.....	..	..	.45	..	.10	..	..	..	..	..	.15	..	.02	.05	..	..	*	*	..	..	.25	*	....	....	....	..	..
0 per ct..	D. Champion.....	..	..	.40	..	.05	..	..	..	*	..	.05	..	*	.05	..	..	.01	.30	..	..	.40	.05	....	....	....	..	..
.07 per ct..	A. Decker.....	..	..	.40	..	.05	..	..	..	..	..	.05	..	.05	.05	..	..	*	.50	..	..	.40	.05	....	....	....	..	..
0 per ct..	E. Decker	..	..	.40	..	.05	..	..	..	..	..	.01	..	.02	*	..	..	*	.50	..	..	.35	.15	*	....	....	..	..
0 per ct..	Geo. R. Bellinger.....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	Homer Petrie.....	..	..	.35	..	.05	..	..	..	.02	*	.05	..	.01	.10	..	..	.015	.50	..	..	.40	.05	....	....	....	..	..
0 per ct..	Jno. Snell	..	..	.25	..	..	..	..	..	..	..	.30	.01	.02	.10	..	..	*	..	..	..	.35	....	....	....	....	*	..
0 per ct..	D. Bellinger	..	..	.30	..	.10	..	..	..	..	..	.10	..	.02	.05	..	..	..	..	..	..	.35	.10	....	....	....	..	..
.33⅓ pr ct..	N. N. Schuyler	..	..	.60	..	.05	..	..	..	..	..	.05	..	*	..	..	..	.02	.50	..	..	.20	.03	....	....	....	..	..
0 per ct..	P. Baum..	..	..	.50	..	.10	..	..	..	..	..	.10	..	.02	.04	..	..	*	..	..	..	.25	.05	....	....	....	..	..
.05 per ct..	A. & P. Cramer.....	..	..	.30	..	.10	..	..	..	*	..	..	..	..	..	..	..	*	..	..	..	.50	*	....	....	....	..	..
0 per ct..	J. Wagner.....	..	..	.25	..	.02	..	..	..	..	..	.03	..	..	..	† *	.005	*	.75	..	..	.70	....	....	....	....	..	..
0 per ct..	A. Jones	..	..	.20	..	*	..	..	..	..	..	..	..	..	..	..	..	.20	.10	..	..	.40	*	....	....	....	..	..
.14 per ct..	Francis Lewis.....	..	..	.30	..	.01	..	..	..	..	..	.15	..	*	*	..	..	.20	..	..	..	.10	.20	....	....	*	..	..
0 per ct..	A. Miller.....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
.05 per ct..	Jos. Snell	..	..	.40	..	.10	..	..	..	*	..	.05	..	*	.01	..	..	*	..	..	..	.30	.12	*	....	....	*	..
0 per ct..	G. Spoor	..	..	.35	..	.10	..	*	..	*	..	.05	..	*	.02	..	..	*	..	..	..	.50	*	....	....	....	*	..
0 per ct..	J. J. Rickardt	..	..	.60	..	.03	..	*	..	*	..	.02	..	.005	.20	..	..	*	..	..	..	.10	.25	....	....	....	..	..
.36 per ct..	Ackerman (Donovan tenant)	..	..	.45	..	.05	..	..	..	*	..	.01	..	*	.01	..	..	.005	.20	..	..	.35	.10	....	....	....	*	..
0 per ct..	Henry Haupt	..	..	.55	..	.05	..	*	..	..	..	.10	..	*	*	..	..	*	.20	..	..	.30	.05	....	....	....	..	..
.24 per ct..	Edwd. Simms (Walter tenant)	..	..	.07	..	.02	..	..	..	*	..	*	..	*	..	..	..	.01	.50	..	..	.90	....	....	....	....	..	..
0 per ct..	S. P. Jones....	..	..	.30	..	.05	..	*	*	*	..	.01	..	*	*	..	..	.015	.50	..	..	.40	....	....	....	*	..	..
0 per ct..	W. & R. Jones.....	..	..	.25	..	.05	..	..	..	..	..	.15	.05	.015	..	..	..	.01	.50	..	..	.35	.15	....	....	....	..	..
0 per ct..	David Davy.....	..	..	.45	..	.05	..	*	..	.05	..	.05	..	*	..	..	..	*	.25	..	..	.25	.15	*	....	....	..	..
0 per ct..	C. C. Delong	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	G. H. & D. Wagner....	..	..	.35	..	.25	..	..	..	*	..	*	..	.02	..	..	..	.01	..	..	..	.35	....	*	....	.02	..	..
0 per ct..	D. Moyer.....	..	..	.35	..	.10	..	..	..	*	..	.05	..	..	..	..	..	*	..	..	..	.40	.07	....	....	.01	..	..
0 per ct..	J. Snell.....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	H. S. Saunders	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	Jno. Walrath.....	..	..	.35	..	..	..	..	..	..	..	10	..	..	..	..	..	.005	*	..	..	.40	.05	....	....	....	..	..
0 per ct..	J. & P. Monk	Not es		lo-t	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	Levi Walrath (2d).....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
.05½ pr ct..	D. H. Moyer.....	..	..	.35	..	.20	..	..	..	..	..	.05	..	.03	..	..	..	..	..	..	..	.20	.10	....	....	....	..	..

† Wheat-fields.

E.—(Continued).

Per centage of Abortions to each Farm.		FOUND WITH ERGOT (CLAVICEPS PURPUREA.—*Tuls.*) UPON THEM.																				UNAFFECTED WITH ERGOT.						
		ELEOCHARIS PALUSTRIS.		PHLEUM PRATENSE.		AGROSTIS VULGARIS.		GLYCERIA NERVATA.		POA SEROTINA.		POA PRATENSIS.		FESTUCA ELATOR, *var.* PRATENSIS.		BROMUS SECALINUS.		TRITICUM REPENS.		DANTHONIA SPICATA.		TRIFOLIUM PRATENSE.	TRIFOLIUM REPENS.	AGROSTIS SCABRA.	DACTYLIS GLOMERATA.	GLYCERIA AQUATICA.	POA COMPRESSA.	ANTHOXANTHUM ODORATUM.
		Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent Ergotized.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.	Per cent of Grass.
0 per ct..	J. Conrad.....	Not	exa	mín	ed..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	....	....	....	....	....	..	..
0 per ct..	F. Wagner	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	...	....	....	....	..	..
0 per ct..	J. H. Saunders	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
.11 per ct..	H. Mesick.....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	...	....	....	..	..
0 per ct..	D. Johnson.....	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	R. R. Mickle	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	O. Flanders.....	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
0 per ct..	J. Ostrander.....	..	..	.30	..	.15	..	.01	..	.01	..	.25	..	.02	..	..	..	.05	*	..	..	.30	.05	....	....	*	..	..
.04 per ct..	J. H. Stauring.....	..	..	.35	..	.05	..	*	..	..	..	*	..	*	..	..	..	*	.50	..	..	.55	.03	*	....	....	*	..
0 per ct.	C. Harder	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	*	*	..	..	..	....	....	....	....	..	..
0 per ct..	J. Walter	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	*	*	..	..	....	....	....	....	....	..	..
.27 per ct..	J. Hendricks.....	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	..	..
.14 per ct..	S. G. Spoor (Van Allen tenant)	Not	exa	min	ed..	..	..	..	..	..	..	..	..	..	..	..	..	*	*	..	..	....	....	....	....	....	..	..
0 per ct..	S. G. Spoor.....	..	..	.30	..	.10	..	*	..	*	..	.05	*	.02	.01	..	..	.01	.50	..	..	.40	.10	....	....	*	*	..
0 per ct..	A. B. Wagner	Hay	cut	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	*	..	..	...	....	....	....	....	..	..

THE FATTENING OF SHEEP IN WINTER:

A PAPER READ AT THE ANNUAL MEETING, FEB. 11, 1869, BY JURIAN WINNE, BETHLEHEM, ALBANY CO., N. Y.

The subject before us is "The Managing and Feeding of Fat Sheep in Winter," together with the difference in the various breeds. My first rule is, always to buy good stock, whatever the breed may be, and to be sure to select animals kindly disposed to fatten. The price of well bred sheep may appear to be high, but depend upon it if there is no money in feeding good stock, there is no money in poor. It will not do (as has often been said) to buy any kind of sheep for feeding, that you can double your money upon; for a one-dollar sheep will consume about as much feed as a six-dollar one, and as neither of them can be fed through the feeding season for much short of five dollars a head, you will readily perceive that the one-dollar sheep would stand you in six dollars, the other eleven dollars.

According to my experience, the one-dollar sheep would weigh in the spring about eighty pounds, and sell for seven cents per pound, which would make five dollars and sixty cents—a loss of forty cents, when the six-dollar one would weigh at least one hundred and twenty-five pounds, and sell for ten cents per pound, making twelve dollars and fifty cents—a profit of one dollar and fifty cents, besides getting the credit in the one case of bringing good stock to market, and in the other such as will be hooted at, and reported for you as *scalawags*. Now, as every good citizen values his reputation (and what is a man good for without it), I think this last item should not be lost sight of.

Next in order then, will be the conveniences for fattening. It is bad policy in this country to undertake to fatten sheep in winter, with no protection or shelter, save a few trees or the side of some old building. I recollect an instance of that kind of feeding, which I went to see some ten years ago, where a man had about 300 sheep feeding, running in a four or five acre lot, without any protection, save such as I have just described. It rained a little while I was there, the ground was soft, although it was February, and his sheep (though otherwise nice good ones), looked wet, lank and muddy; his

feeding troughs were in this lot, all covered with mud, and some of the feed, on account of the mud in the trough, was left. I expostulated with him about his slovenly manner of feeding. He replied that he could do no better. I said to myself, this is your first and last winter for feeding, and so it was.

My buildings, which it will be well to describe as fully as possible, were put up with as much reference to storing the products of the farm as for protecting and sheltering the sheep. The barn first in order, is nearly surrounded by other buildings; it is forty-four by fifty-two feet, with twenty-foot posts, with upper and lower floors—horse and cow stables and granary, all below. Into this barn goes all the grain I raise, first, and then as much feeding hay as it will hold —and there was room this year for but very little.

When I thrash my grain (which I always do in the fall), I put the straw mostly back into this larger barn for feed and litter. The granary in this barn will hold about 600 bushels of grain, and has an alley through the middle, where the corn, oil-meal, etc., is mixed for feeding the sheep. The upper and lower floors of the barn are used for hay, straw, etc., from one feeding to another. I have a wagon or carriage house close to this barn, twenty by thirty feet, with cellar the whole size, eight feet in the clear, middle and upper floors. This cellar is used exclusively for roots. The roots are generally cut by machine, and every day, at half-past twelve, are fed to the sheep. When I have plenty of them, we feed daily at the rate of from three to four bushels to the hundred. The middle floor of this building is used for carriages, sleighs, harness, etc., and the upper floor for grain for the sheep, and holds from 1,500 to 1,600 bushels (not without studding the beams however). After the feeding and watering is finished in the morning, the grain that is needed from the wagon house is brought down and mixed with oil-meal, etc., in the alley heretofore mentioned, in the granary in the barn, for the next two feedings.

The next building I shall mention, which I will call shed number one, is twenty-one by twenty-four feet, sixteen foot posts—on the south side of the barn. The upper part of this building is filled in summer with market hay, which is pressed out and sold in the fall, the floor covered with sawdust and leaves, and when the time arrives, forty sheep are put up and kept there until they are sold in the spring. Of all my feeding yards and stables, I always find that these second-story sheep do the best. The lower part of this building has manure

piled under it in summer, as I always like to have what manure is not used in the spring under cover through the hot weather; it is taken out clean in the fall, and the shed arranged the same as the upper part, and, together with an open yard about twenty-four by sixty feet holds sixty sheep. These sheep always have the run of this yard with the shed, except when it is stormy, and then they are closely confined to the shed.

The next in order is a small shed in rear of number one, about ten by twenty feet, in which stock rams are kept. The next is another low shed, west of barn, about fourteen by twenty-four feet, for breeding ewes. Both these sheds have small yards attached for good weather, are used in summer for piling manure under, are cleaned out in the fall, and receive, like number one, a coating of sawdust and leaves, when they are ready again for the sheep.

Next comes another shed, also west of the barn, thirty by seventy-two feet, with twenty foot posts. The upper part of this building is also filled with market hay in summer, pressed out and sold in the fall, and the floor then covered with sawdust and leaves, the same as number one and the others.

Although I say that I put in sawdust and leaves in the fall, I will correct that a little by saying that sometimes, as I have done this year, and as I always advise when practicable, I put in the sawdust before harvest on these upper floors. It then has time to get nice and dry, thereby not only preserving the floor better, but also absorbing the more liquid manure from the animals. The lower part of this building is also used for piling manure under in summer, and in the fall is treated the same as the other. Before the sheep are brought into this building in the fall, we put up, made expressly for the purpose, and put away in summer, three partitions on the upper floor and three partitions below. This gives us four pens above and four below, each eighteen by thirty feet. Each of these pens holds forty-five sheep, which makes 180 for the upper floor, and 180 below, or altogether for this building, 360 sheep. On account of the lower part of this building being lower than the upper one, I have for each of these lower pens a small yard attached, about ten by eighteen feet, which in good weather they always get with their pens. Ventilating windows are also provided for all the pens, and are always regulated according to the weather. Two of these lower pens have two cisterns, supplied from the roof of this shed and one side of the barn, which

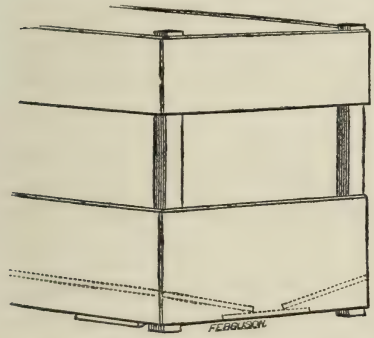
generally, but not always, keep the sheep in this building supplied with water.

The next building is a shed, a "lean-to," on the north side of the barn, twenty by forty-four feet, used as the others, for piling manure under in summer, cleaned out and treated same as the others in the fall, and holding seventy sheep. The upper part is used for straw, corn stalks, &c., in winter. Under this shed I have a well which, besides its natural supply, gets what water this roof brings, together with the other side of the barn and another shed not yet mentioned. This shed has no yard.

The next, and last permanent shed (although I had another temporary one I used last winter), is thirty-five by thirty-six feet, eighteen foot posts. The upper part of this shed is filled in summer with feeding hay for the sheep, to be fed out in winter; twenty-one by thirty-six feet of this shed has also manure piled under in summer, used as the others in the fall, and together with an open yard about thirty-six by forty feet, holds seventy-five sheep. These seventy-five sheep, together with the yard containing sixty sheep, get their water from a well standing between the two yards. Of this shed, fourteen by thirty-six feet, is floored and partitioned; one-half of it is used for a horse stable when needed, and into the other half I always put twenty of my best sheep.

I have now given, as well as I can, a description of the buildings and arrangements I use, and although many of you may have better ones, still I must say I am very well satisfied with mine. I will now say something of feeding apparatus, and may premise that all claimed improvements in sheep feeding arrangements that have come under my observation for the last ten or twelve years I have always examined very carefully, but have universally found, after looking them over, that for fattening sheep, all things considered, they were no better than mine. For breeding sheep, however, I think there are better ones. I have a feeding box (after which I made others) sent me by my friend, William Chamberlain, Esq., the noted fine-wool sheep breeder, which for breeding sheep is all that could be desired, as we can afford to take a little more time, and have a little waste and trouble with a few nice breeders. When, however, we come to fattening five, six or eight hundred sheep, it makes quite a difference whether one man can take care of them, or whether we must have two; as an extra hand through the feeding season will cost, wages and board, with us, at least $150. Then, also, it makes quite a difference

whether 500 sheep waste a pint of grain per day, which I am satisfied was more than my whole flock wasted last winter, or whether they waste half a bushel per day; and I have seen more than that wasted by bad fixtures and management, thereby causing loss and discouragement to the person engaged in feeding. Also, whether we waste 100 pounds of hay per day, or whether 400 or 500 pounds will cover the waste for all winter. These wastings are what hurts, and although it looks like but a little, when you come to figure it up you will be surprised to see what it amounts to.



Description of the Feeding Box.—Feeding Box 12 or 14 ft. long, and 22 inches wide—the bottom slanting from both sides and resting on a board in the middle, forming a complete trough for grain or roots. The bottom side boards should be 11 or 12 inches wide—then a space left of 8 or 10 inches, according to size of sheep—then the top boards, 8 inches wide—the ends and sides to match. Corner pieces of scantling in the inside, of hemlock or oak, as pine will not hold a nail or screw, the latter of which is preferable in putting them together.

My apparatus or feeding box for feeding, hay, grain, roots, etc., which it took me four years to perfect, and which you are all at liberty to use if you like it, is from twelve to fourteen feet long, twenty-two inches wide, with a tight bottom; the upper sides let in by the scantling at the ends and middle, and all the box except the bottom put together with good stout screws. (See annexed figure and description originally published in the *Country Gentleman.*) I claim for this box economy, expedition and cleanliness.

The sheep cannot upset the feeder nor his basket, as he carries it on his shoulder or in his arms to the first box; he walks up perfectly straight and scatters the feed from the basket evenly and quickly through all the boxes in the yard, the sheep falling in behind him just as well drilled soldiers fall in line at the tap of the drum; the whole time consumed for putting grain in four of these boxes for seventy-five sheep, not being more than one minute. Then, also, the space being but from eight to ten inches wide there is no chance for the sheep to get more than their heads through, and the box being but twenty-two inches wide, there is no need for crowding or straining to reach their feed, but each animal stands quietly and comfortably until his meal is finished. Also, every experienced sheepman knows that sheep always crowd up to their feed instead of away from it; consequently with a good feeding box no hay or grain can be wasted.

As I said before, four of these boxes can have grain put in, in one minute. Hay, straw, roots, etc., can also be put in very quickly, as the boys often take hay enough at once for two boxes, drop part in one, and the balance in the other, when, by a little shake with the fork, it is scattered evenly through the box. The same also with roots, as the feeder, when he gets to the first box, can put them in so quick, that, let the sheep come as fast as they can, they cannot catch him before he is through.

These boxes have only to be turned over and back again, and they are clean. No dirt can get in from the sides, as the space between the upper and lower boards is too narrow, and the box being from twenty-eight to thirty inches high, no dirt can get in from the top, consequently, when the box is turned over and back again, it is always clean.

As to feed, water, litter, salt, etc., I must first and most particularly urge the feeder to be sure and have plenty of them, of a good quality, and to have it *right there.* It is not very good economy to depend upon your neighbors, when you buy your feed, or any part of it, to bring it to you from day to day, but you should always have at least two weeks' or more feed on hand, when you will be all right, come fair weather or foul. I have seen a case of that kind, where a lot of fat sheep were obliged to go without their grain for a whole day, on account of a disappointment, which could not be made good again in three days' feeding. Water, too, should be looked after regularly. I have a rule that the boys shall go around and fill up the troughs with water twice in the morning after feeding, and twice in the afternoon, always commencing everything in the shape of feed, water, salt, etc., with number one, and always ending with the last yard or stable.

Littering, cannot under any circumstances be neglected. I have often stood in the yard or stable, and noticed when the bedding was becoming wet or dirty, how careful the sheep were to keep out of it, and how reluctantly they would lie down. As soon as they got a nice clean bedding, they would drop down upon it, and lie there as contented and happy, to all appearances, as an exhausted and worn-out person would on a bed of down; and here I shall take the liberty to say, that in my humble opinion, this is the time and the only time they accumulate flesh. Salt, ashes, etc., should also never be forgotten; no, not for a single day.

Quietness, also, is of the greatest importance, and, in order to secure

it, I have a rule never to allow strangers in the yard, unless accompanied by the feeder. The sight of a stranger in the yard will send the sheep pell-mell in every direction, and the effect will be perceived for a whole day afterward; and no other reason can I assign for the forty sheep in the upper part of shed number one doing better than the rest, but that we never go there except to feed, water, litter, etc., and there is no passing or re-passing through them as through the other pens.

The question is frequently asked, "what kind of grain is best for fattening sheep?" I answer, for me, corn is the best for the main feed, although I like a few oats mixed to start with, and have no objections to beans, peas and oilmeal if they do not cost too much. Whenever they cost as much, or more than corn, I dispense with them, as a sheep feeder must count his cost, as well as his reputation, if he intends to succeed. Another question arises: "Do you find whole or ground feed best?" For horses, cattle and pigs, I prefer ground feed, but for sheep, especially fattening sheep, I choose whole or unground feed. I find that the sheep will grind it just as well as the mill to which we must give every tenth bushel, besides having the trouble of hauling the grain to and from it. I also find that fat sheep will hold up to their full feed much better, especially in soft weather, on whole than on ground feed; consequently, drawing grain to and from the mill, and paying toll, is, in my estimation, labor and money lost.

A person to succeed in sheep feeding, must do it because he likes to do it, because he prefers to feed sheep and see them eat to any other business done in winter; and although he may not be able or willing to do the work himself, still he must take delight in seeing it well attended to, if he expects to prosper. He should be sure to see every sheep he has, at least once a day, when, if he understands his business, he can tell at a glance whether they have been properly cared for.

It is asked: "What kind of hay is best for sheep?" Emphatically I say clover, but it should be cut early and cured nice and green. Timothy is probably best for horses, but for cattle and sheep I prefer clover, and would rather have a ton of nice green fine clover than a ton of timothy, although in market one ton of timothy will bring as much as two of clover. I have sometimes fed some timothy hay to my sheep, but always found that it was not the kind for them; they would grow lank and thin upon it, not a very good sign that a fatten-

ing animal is thriving well. As soon as they got the clover again they would plump up and look full and nice, and I can assure you unless your sheep look full and plump, they are not fattening very fast.

Is straw good for feeding sheep? One feed at noon of nice bright oat, barley or pea straw, I prefer to hay, as they not only relish it, but it is a change for them. Sheep are very fond of variety, and will eat daisies, weeds, thistles or almost anything of the kind that is cut and cured green. Nice green corn-stalks are not very bad for sheep, and when I have plenty of them I always feed the sheep with them at least once a day, and consider them as good as hay. I prefer, however, feeding them the fore part of the winter, as towards spring they will sometimes contract dampness, and then the sheep do not eat them so well.

I am asked to answer this question: "Shall we cultivate roots for fattening sheep; and what is their value compared with grain?" I have often thought I would experiment a little on this subject, but as the trial is attended with considerable pains and trouble to have it accurate, without which it is of no use, I have put it off from winter to winter, and now have no figures to give. I intend yet to test this question thoroughly. However, I will answer as well as I can, and as I have used more or less roots every year since I commenced feeding sheep, I think that I have a pretty good idea about them. I will say then, cultivate roots by all means, if you have plenty of of manure, and intend to put your land in proper condition; if not, you may better leave it alone, as you will surely get more grass and weeds than roots. I was successful in raising about 1,800 bushels of flat turnips last season on about two and a half acres of land, and with very little labor. Early in the spring we covered the ground with about fifty loads of manure from one of the sheep sheds, and plowed it in about seven inches deep. Just before the time arrived to put in ruta-baga seed, the ground was harrowed, another light dressing of fine manure put on and worked in with a gang plow about three inches deep. It was then well harrowed, and the seed immediately sown. The seed proving bad, I gang-plowed the land again and sowed new seed. This time the seed came beautifully, but was soon destroyed by the turnip fly, when as a last resort, I gang-plowed it again, sowed the common purple-top turnip, and had the result stated. On account of the frequent gang-plowing by which the weeds were destroyed, we had no trouble but to thin out the plants. Part of the

seed was put in with a large seed-planter, and part sowed broadcast, and in thinning the plants where the seed was put in with the planter, the work could be done in one-half the time that was required where the seed was sown broadcast.

With regard to the value of roots for feeding, my experience is that whenever they are worth at home more that seventy-five cents per barrel, and corn not over from one dollar to one dollar and twenty-five cents per bushel, the corn is the cheapest, and I would use only a few roots as a substitute for green food. I consider carrots and ruta-bagas better than common turnips; still by feeding a little more of the latter than the former, I think the sheep do just as well on them.

Another inquiry is, "How often do you clean out your yards and stables in winter?" Not at all, unless I perceive danger to the buildings from the weight of the sheep and manure on these upper floors; then we remove a quantity sufficient to make the building safe, and leave all the rest until the sheep are sold, when we find the manure so hard and solid that it must often be cut with an axe or hay-knife into blocks before it can be handled; thus showing that no decomposition has taken place during the feeding season.

Feeding with me is always commenced about half-past five in the morning, when I always endeavor to be there, and see that everything is right; and give special orders, if necessary, for the day. The best help will sometimes put off for to-morrow what should be done to-day, and this is worse in stock feeding than in any other business.

I hold that the noses of the sheep should be smeared with tar, at least four times through the feeding season; first, when they are brought home in the fall; second, when they go into their winter quarters, and then twice during the winter. By doing this we prevent all trouble with colds and foul noses. The old method of catching and holding the sheep to perform this operation made it a laborious task, and I now practice a new and easier way of doing it. We simply take two or three of the sheep boxes which I have already described, which are loose and can be set anywhere, and make a small yard under the shed, and drive the sheep in, and pack them closely; one man holds the bucket of tar, and two or three, each with a wooden tar-ladle, jump right in among the sheep, and without catching or holding the sheep, put the tar on, commencing at one end and coming out at the other; and this job, for six or eight hundred sheep that used the old way to take us almost all day, can now be done in less than two hours, besides being so much less injurious to the sheep.

When I went into the sheep-feeding business, years ago, it was more with a view to the consequent improvement of the land (it would hardly grow a crop of good beans then), than to make the ready dollar. In this I have fully succeeded. I wanted to make two spears of grass grow where but one grew before, and I am sure I am getting three, some of my neighbors say four; however, I call it three. The meadows that used to cut from one-half to one ton of hay per acre, now yield on an average over two. Raising rye was then out of the question; last year I got from about sixteen acres, 400 bushels of rye, and straw enough to have amounted to near $900, if I had sold it (which I never do unless I replace it by hay for bedding, as I have done this year, getting three tons of hay for one ton of straw). This year I got, from forty-five bushels sowing, fifty loads.

For fear of misleading you, I must say, that with all the experience and precaution in buying, good fixtures, plenty of feed, litter, care, etc., you will not always succeed. For though I have for the last twelve years studied the thing closely, and carried it out carefully, in spite of all my efforts I have not always made money, and would almost guarantee that out of every ten new sheep-feeders, eight will probably feed but one year. When a friend asks my advice on the subject, I always say to him, try twenty-five or fifty, and then, if you like it, get more the next year. Some have looked upon this advice as selfish and given to keep others out, and have rushed into the business, and not only the first year made no money, but actually lost nearly half their investment. We used to have several sheep feeders in this and adjoining counties, and, as the principal feeders have all left the business except myself, I think this is pretty conclusive evidence that what I now say is about right.

In regard to the profit of the different breeds of sheep for fattening, allow me to say, that in my twelve years experience in feeding, I have found the breed of sheep to have much to do with their early maturity, weight, and fattening qualities. I have had Leicesters and their grades, Cotswold grades, South Down grades, Merinos and their grades, and have always found that whenever the Leicester blood predominated, I had an animal that would fatten quick at an early age, and make good weight, and have had no trouble when the animal has been half or more of Leicester blood, with good keeping, to make him dress 100 pounds of mutton at twenty months old.

I have lately been informed by a Western New York gentleman, that I am represented among fine-wooled sheep men as having changed

my views on the question of feeding coarse or fine-wooled sheep, and that I am now in favor of fine wools. I think my experiment of last winter on this point, printed in the *Country Gentleman* of April 30th, 1868, would satisfy any one to the contrary. Nevertheless, having found it impossible to get coarse-wooled wethers enough for feeding the present winter, I am again fattening a number of fine-wools; but not from choice. Among the latter is one with a ring in his horn, which, as I was told by the man from whom I got him, was once sold for three hundred dollars. I was glad to get rid of him, although he was fat, for five dollars and fifty cents; and as to fine-wools generally, I am fully convinced they will not make me more than half the money for winter feeding that the coarse-wools will.

THE NEW YORK STATE FAIR FOR 1868.

By Joseph Harris.

The New York State Agricultural Society held its twenty-eighth annual exhibition at Rochester, September 30, October 1, 2 and 3, 1868. In attempting to make a report of the fair it is better to take things as they come. As we enter the gate and turn to the right hand, the first thing that presents itself is the

Exhibition of Poultry.

The most striking feature in this department is the magnificent display of the recently introduced breeds of French fowls—the Houdan, Crevêcœur and La Flêche. They are of good size, not too long in the leg, plump breasted, with well developed, square bodies, resembling in these respects a good specimen of the Dorking breed. There was a good show of Brahmas, black Spanish, Poland, Game, and other well-known breeds, and the best white and grey Dorkings that we have seen for some years. G. H. Warner of New York Mills, J. Y. Bicknell, Westmoreland, John Salisbury, Jr., Nyack, Timothy Herrick, Staatsburgh, T. Gould, Aurora, E. A. Wendell, Albany, N. Barnes, New Hartford, and other well-known breeders exhibited large and varied collections of the different kinds of poultry. It is evident that this species of our domestic animals is receiving increased attention.

Sheep.

We next come to the sheep pens. But where are the sheep? Were it not for the grand display of Cotswolds and other long wooled sheep shown by M. H. Cochrane of Compton, Quebec, Walcott & Campbell of New York Mills, N. Y., Jurian Winne of Bethlehem, and a few capital South Downs by Ezra Cornell of Ithaca, and of the splendid show of Silesian Merinos by William Chamberlain of Red Hook, we should have had the most meagre exhibition of sheep ever made at a New York State Fair. There were a few good specimens of the late popular heavy fleeced Merinos, and one that was placarded as "valued at $15,000," but they attracted little attention. The principal exhibi-

tors in this class "Merino sheep bred for weight of fleece," were L. J. Wright & Co., Milo Center, Yates county, Bronson & Mariner, East Bloomfield, Ontario county, S. B. Lusk of Batavia, and Pierce & Fellows, Spencerport, Monroe county.

W. B. Dinsmore, Staatsburgh, Dutchess county, exhibited some of his celebrated Cashmere Goats.

Swine.

As usual there was a large display of Jefferson county pigs, well and favorably known under the name of Cheshires, though one of the leading breeders exhibited them as Yorkshires. They are, in many respects, model hogs, and when forced for exhibition it would be difficult to find a handsomer breed. The only pigs that we ever saw equal to them in form and beauty were some grade Suffolks from a part Yorkshire sow. They are white in color, large, long, square bodied, fine ears, small bones, and have none of the coarseness sometimes seen in the popular breed known as "Chester Whites." Whether they have been bred long enough and with sufficient regard to purity of blood to warrant us in regarding them as an established breed, is an open question.

The Society offers prizes for two classes of pigs: the "large breed, which when full grown and fattened will weigh over 450 pounds dressed," and the "small breed, which when full grown will not weigh over 450 pounds dressed." It is time the list of premiums in this class was modified or explained. If it is expected that the pigs should be thoroughbred, the premiums are all very well, and all that is necessary is to appoint judges who are acquainted with the different breeds; but if it is intended to allow any good pig to compete, the word "breed" should be stricken out, and the prizes offered for the best specimens of large and small pigs, respectively. It is well known that a grade hog will frequently beat a thoroughbred in fattening, and breeders should have the opportunity of exhibiting grades, for the express purpose of showing what improvement can be made on common pigs when crossed with thoroughbred boars.

The report of the Committee on Swine, S. S. Whitman, Little Falls, chairman, remarks on the show as a commendable one, "though not as extensive as would be desirable, and probably not equal to the show of last year." It continues:

"While it is desirable that those who make the breeding of choice stock a specialty should exhibit their stock at our fairs, it is to be

regretted that so few farmers enter *their* stock for competition. While looking at the fine Yorkshires of Mr. Huffstater, and the improved Cheshires of Mr. Cavanagh, we could not fail to make a comparison between them and ninety-nine hundredths of the swine that are raised in the State; and desire to impress on the minds of all who breed swine the importance of first securing the *best breed* within their reach, and then of giving them the care and feed that will secure the best results. Thus, although their success may not be equal to that of more experienced breeders, the trial will not fail to give satisfaction. Although a miserable hog may be produced from the best breeds by bad usage, it can hardly be questioned that much depends on the breed. Whether it shall be large or small, must depend on the circumstances and means of the owner. We think it can be demonstrated, to any thinking person, that pork made in the way proposed costs much less, and the quality is far better than that made by the half-way starving process. We hope to see an improvement in this class of stock, equal at *least* to that of the dairy, mutton and wool-growing or poultry interest, now so much in the ascendant."

There can be no doubt that the farmers of the State lose much money in raising and fattening poor bred hogs. But the remedy is easily applied. Keep none but thoroughbred boars. It is unnecessary and unadvisable to attempt to raise thoroughbreds merely for the butcher. Select the best sows of the common stock, large, and if needs must, a little coarse, and cross them with a pedigree boar of good shape, fine bones, and great aptitude to fatten and mature early, such as the Suffolk, Berkshire, Essex or Yorkshire, and if the young pigs are well fed, no more useful hog for ordinary purposes can be desired. But it is absolutely essential at all times to use a thoroughbred boar. Whether it is better to use one of the "small breed" or the "large breed" depends on circumstances. For spring pigs, to be fattened in the fall, the small breed will be the most profitable; for pigs to be kept till a year or eighteen months old, the Yorkshire or some other large breed may be better. When crossed with a large sow, however, then the smallest of the small breeds, the "Prince Albert Suffolk," will give a hog that we have known dress 400 pounds at a year or fourteen months old. There were not more than two or three exhibitors of thoroughbred pigs. James Brodie, of Round Hill, Jefferson county, showed some excellent Yorkshires, and there were a pen or two of Essex, but there was not a thoroughbred Berkshire or Suffolk on the grounds. One reason of this apathy on

the part of breeders may be found in the fact, that many of them prefer the Essex pigs, but as they are *black*, and as this is not a popular color, they do not care to exhibit them. One of the judges on swine at the fair remarked: "I do not like a black hog anyway." But the breeders of Essex and Berkshire pigs should exhibit, as this is the only way in which such a silly prejudice can be overcome.

Short Horn Cattle.

Mr. Sheldon and other eminent breeders did not exhibit this year, and the editor of the *Cultivator and Country Gentleman* met an Illinois gentleman on the grounds who remarked, "We have two or three herds in my neighborhood which would outnumber your whole display of Short Horns with good show animals." And very likely; for the number present was small, as indeed has most frequently been the case of late, though comprising many animals which our western friend confessed could not with ease be beaten singly. There were many inquiries for the Short Horn exhibitors who were "conspicuous for their absence." Hon. A. B. Conger, Waldberg, near Haverstraw, exhibited several females, among them Myrica, a red heifer of Mazurka descent, and a worthy specimen of the family; he also showed the bull which won the first prize at Buffalo, a large roan, showing the Bates cross strongly. From the herd of Hon. Ezra Cornell, Ithaca, there were a half-dozen heifers, from calves to three year olds, several of them from his tribe of Lucy Anns, which has furnished in years past so many good show animals. Lucy Curd, a red and white yearling, is very neat in her head, full in all the Short Horn points, with remarkable development of crops, loin and rump; and Kirkleavington, roan, now three years old, by 3d Lord Oxford, out of the Kirkleavington cow imported by Mr. C., in addition to other merits, has the broad loin and hips we remarked in her as a heifer. Messrs. Walcott & Campbell, New York Mills, had four cows and heifers; among them Grace Darling, a large, good roan cow, with a strong resemblance to her ancestress, the well known prize cow Miss Bellville. But one of the great features of the show, was the herd brought on by Mr. M. H. Cochrane of Montreal and Compton, Canada, fresh from its winnings at Hamilton. Baron Booth of Lancaster, an eighteen months bull, was at its head, with a large infusion of the blood indicated in his name, with pleasing head, fine horns, an extra good top and flank, evenly good, and red in color. He was accompanied by the cows Sanspareil, large and strong; Snowdrop, three years old, with beautiful

head and much general excellence; Maid of Athol, plainly colored with red and white, but so even in her points as to promise a brilliant show career; Wharfdale Rose, a rich roan, just a yearling, and one of the best of Mr. C.'s last importation, bringing many good words with her from the English critics; Maggie, red, two years old, a beautiful heifer that has already worn the ribbons of several prizes; and last, but excelling all the rest, good as they are, the renowned cow Rosedale.

Mr. C. K. Ward, Leroy, had a capital lot of cows, most of them of his Hope family, from the cow Hopeless, imported by the Livingston Company a few years ago; also the bull Monarch, by Oxford Lad, and much like him in his many excellences, and a nice red bull calf by 2d Duke of Geneva, out of the well known cow Constance 2d. Mr. Wadsworth of Geneseo, exhibited a useful looking lot, but without special preparation for the occasion, so that they attracted less remark than many others.

HEREFORD CATTLE.

This celebrated and really valuable breed of cattle is fairly distanced, so far as general popularity is concerned, by the Short Horns. Mr. Corning has, for many years, kept a fine herd of these cattle, and has often exhibited splendid specimens of the breed. But of late years the interest in Herefords is on the decline. We think this is to be regretted, for in many sections of the country where food is abundant, an extra six months keep is not a serious matter. The Herefords ought to be fairly tried; they do not mature quite as early as the Short Horns, and are not often good milkers, but they will grow rapidly, and get quite fat on rich grass with little or no grain, and the beef is of very superior quality. This breed is certainly worthy of more attention. M. H. Cochrane, of Compton, Quebec, showed a fine herd of five cows, and a two year old bull "Compton Lad," all of which, especially the latter, attracted much attention. The judges in their report say: "The herd of Herefords exhibited by M. H. Cochrane were all animals of very superior quality. The bull 'Compton Lad,' we consider the best of his class ever shown in this State."

DEVONS.

There were but two exhibitors in this class, Mr. Walter Cole, of Batavia, and Mr. Joseph Hilton, of New Scotland. The animals,

however, were very superior. Mr. Cole's bull, "Queen Anne's Huron," attracted much attention, and was worthy of it. Mr. Hilton's heifer, "Primrose," is an animal of remarkable quality and promise, and an honor to her breeder. In fact, the whole class is a decided improvement on many former exhibitions, and it is gratifying to the admirers of this beautiful and useful breed that it is in such good hands.

Ayrshires.

Of this class the *Country Gentleman* well observes: "In Ayrshires, the well known herd of Messrs. Walcott & Campbell, of New York Mills, attested the care and judgment of its owners: including the beautiful cow Handsome Nell, remarkable for the shortness of her legs, and her development of milk vein and udder, with five heifers descended from her, all so good as to require no special mention, unless it be Nannie, a young cow of much style, with all the udder one expects in a well-bred Ayrshire. The young bull showed the improvement effected by the addition to the herd of the bulls Baldie and Tarbolton, imported a few years since. There were some other Ayrshires shown, but none of special note."

Jerseys.

The principal exhibitors in this class, were W. B. Dinsmore, Staatsburgh, Dutchess county; J. D. Wing, Washington, Dutchess county, and Samuel Campbell, New York Mills, Oneida county. The honors were pretty evenly distributed among them. Mr. Campbell obtained the first prize for his three year old bull "Champion," and Mr. Wing for the best cow, and also for the best two year old heifer, while Mr. Dinsmore obtained the first, second, and third prizes for yearling heifers, and the Herd prize. Mr. Thomas Gould, of Aurora, was also a successful exhibitor.

Galloways.

Mr. L. P. Gillett had a few Galloways, which are sufficiently strange among us, to be regarded almost as curiosities, with their smooth polls, black hides and shaggy hair.

Horses.

In this department, says the *Country Gentleman*, the great feature was the show of Stallions. An unusual number of good horses were present. The $200 special prize, presented by a member of the

Society, was taken by Continental, a descendant of Ethan Allen, belonging to Mr. R. P. White, Adams, Jefferson county, a bright bay with white feet behind, of fine finish and good action. Mr. Thomas L. Harison, Morley, St. Lawrence county, exhibited in this class, Zollicoffer, dark brown, a very meritorious horse, of good bone and substance, especially for a horse with his pedigree, being by Star Davis from the dam of the famous hurdle horse Zigzag. D. B. Haight, Dover Plains, Dutchess county, made a very good entry also in this class with Goldsmith, a mahogany bay, five years old, by Rysdyk's Hambletonian, dam a fine thorough-bred mare by imported Trustee. He proved to be a trifle below the prescribed height, (fifteen and three-fourths hands), but is a horse of fine form and action, and great substance, and stood second in a large class of well-bred stallions where this standard of height did not apply. The class of three year old stallions was a very fine one, including, beside the excellent horses whose owners' names appear in the list of awards, an excellent brown colt from W. De Kay of Elmira.

The stallion El Dorado, by Toronto Chief, dam Minnie Myrtle by Kemble Jackson, belonging to Thomas H. Faile, Esq., New York, President of the Society, was shown by Mr. Haight of Dutchess county, for exhibition only—a horse of great style and speed, and, for getting roadsters, probably unexcelled by any horse on the ground. Another stallion belonging to the President was also shown by Mr. H. simply for exhibition, Ivanhoe, a rich bay, three years old, by Rysdyk's Hambletonian, dam by Toronto Chief; not large, but of great beauty and excellent trotting action, as indeed he should, combining, as he does, two strains of blood so celebrated for trotting speed.

Col. Lewis G. Morris, Fordham, formerly so largely engaged in the breeding of improved stock, was this year in attendance, not for pleasure only, but once more as an exhibitor. He is now devoting himself solely to horses, his stables containing about forty, both thorough-breds and of trotting strains. He entered, for exhibition only, the thorough-bred stallion Marshall Anderson, five years old, blood bay with black points and no white, sired by Lexington, dam Ariel by imported Sarpedon, and promising to do credit to his distinguished lineage. For competition, Col. M. had four entries, taking with them three first prizes, and a second—the three former all of them colts sired by Rysdyk's Hambletonian; Orion, grey, two years old, dam May by St. Nicholas; Arcturus, bay, yearling, dam

June by St. Nicholas, and Juno, a grey filly, two years old, a full sister to Arcturus. The fourth is Vivandiere, a blood bay two year old filly, placed second to Juno on the prize list, by Volunteer, dam Martha by Abdallah.

Hon. A. B. Conger exhibited Black Patchen, a fine stallion, and two young stallions, Dexter by Major Winfield, and Mayboy, by Major Low, both bays, two years old, driven together, and very promising animals.

For the names of other exhibitors to whose contributions we cannot refer in detail, we must refer to the list of awards as published. The show of brood mares numbered nine entries, and was not specially worthy. The classes of fillies, three and two years old, were small, though containing some animals of promise. The show of matched horses, sixteen hands or over, was very indifferent, so that the judges declined to award any prizes, though one pair entered in this class would have taken the first prize if they had stood the test of measurement. In the class over fifteen and under sixteen hands, the exhibition was much more creditable, though hardly what might have been expected in the locality. The road horses included some good pairs, but were also below what they should have been. The display of horses upon the track Thursday afternoon included most of those entered, and was exceedingly interesting. Those that had received awards were decorated with the prize ribbons, so that the immense throng of spectators standing deep along the whole length and on both sides of the track, had a full opportunity to compare and scrutinize those which the judges had selected as the best in their several classes. This was a decided step in advance of anything that has been accomplished heretofore, and it is to be hoped that it may become in the future a regular part of the programme of the day.

Farm Produce.

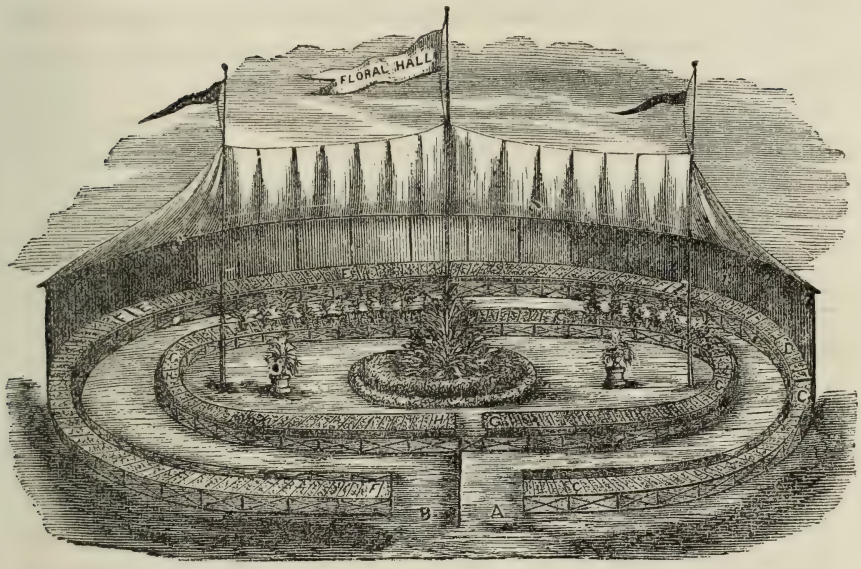
The two acting judges in this department, Mr. O. K. Rice, of Greenwich, and Mr. C. B. Way, of Camillus, are entitled to high praise for their energy and fidelity in discharging their arduous duties. We would suggest that there should be at least three committees in this department. A good judge of flour is not necessarily a good judge of cabbages, and a man who is a good judge of wheat, may know very little about hops or vegetable oysters. "Farm Produce" includes every crop raised on the farm; and as though this was not enough for one committee, a great many plants ordinarily culti-

vated in the garden are also included in this department, such as lima beans, sweet corn, celery, cauliflowers, tomatoes, egg plants, peppers, lettuce, radishes, salsify and sweet potatoes.

The exhibition of farm produce should be the grand feature of the Agricultural Fair. But this will never be the case, unless a special effort is made to induce farmers to exhibit their products. We should not only offer liberal premiums, but we should provide buildings where the different articles could be so arranged, that they might be seen to good advantage. Then let committees be appointed in the different departments with a request that they would not merely award the premiums, but give us all the facts they could gather in regard to the articles, naming those that are new and valuable. The report of the committee on Short Horn cattle is a model in this respect. It contains matter of great interest, not only to the exhibitors, but to the farmers of the State. We have the awards and the *reasons* for them. So of the Devons and Herefords. And the report of the committee on horses is valuable. Cannot we have some such reports in regard to wheat, barley, oats, rye, Indian corn, beans, peas, clover seed, &c., &c.? There are men enough in the State of New York who could give us valuable information in regard to these grains, and also in regard to potatoes, mangel-wurzel, ruta-bagas, turnips, carrots, parsnips, and similar farm crops, and also in regard to garden vegetables. But do not ask one committee to do the whole. The Society appointed one of the most experienced millers in the State on the committee on wheat, but when he found that he would have to pass judgment also on pretty much all the products of the State of New York, he very wisely declined. We would call the attention of the Executive Committee to this matter, feeling assured that they will cheerfully do whatever is needed to make the exhibition of farm products a credit to the State.

Horticultural Department.

Of the exhibition in "Floral Hall," we cannot do better than copy the following interesting account from the *Cultivator and Country Gentleman:*



FLORAL HALL.

A. Entrance—B. Exit—C. Apples, Professional—D. Pears, Professional—D. to E. Grapes—F. F. Amateur Collection of Apples, Pears and Quinces—G. G. G. Professional Exhibition of Flowers—H. H. Amateur Exhibition of Flowers.

The exhibition of fruits and flowers was held in a large oval tent, seventy feet wide by 130 in length, and was one of the most attractive features of the fair. A table four feet wide extended entirely around the outer circumference of the tent, with the exception of spacious passages, one on each side, for entrance and exit. This table was devoted entirely to the exhibition of fruit, and was well filled. Sixteen hundred plates were furnished and arranged for the convenience of exhibitors, and nearly all were used. Two feet from the tables, and extending all around, was placed a guard to keep the crowd from pressing upon the tables, and into the space between exhibitors, reporters and committees only were admitted, and here they could perform their duties at all times without disturbance. This *guard* was not constructed of rough timbers and boards, as usually seen, but was a neatly constructed ornamental rustic fence, made of white cedar poles, retaining the bark. The passage-way for the people was thirteen feet in width, extending around the tent, and as the spectators all passed in at the same entrance-way, there was very little crowding or complaining, although every available foot of room was completely thronged. On the inside of this passage-way another rustic fence surrounded the tables designed for flowers, leav-

ing a similar space for exhibitors, &c., between the railing and the tables. These tables were covered with moist sand, to the depth of three or four inches, for the reception of cut-flowers, and no plan we have ever seen is so well adapted to the purpose. Flowers placed in this on Monday were in excellent condition at the close of the fair on Friday afternoon. We believe that the credit of this simple but very effective device, which proves far superior to the old system of providing vials or dishes for the purpose, is mainly due to Mr. James Vick, of Rochester, and was first employed at a previous exhibition of the Society, at which he also served as superintendent in the horticultural department.

Inside of the tables for flowers was an open oval space, covered with grass—in fact, a beautiful lawn, eighty feet long by twenty wide. In the centre of this was a splended bed of plants, mostly with ornamental foliage, such as the Canna, Calladium, &c., while the gay Tritoma raised its fiery stripes of bloom above the mass of green. The border for the bed was the new French Marigold, *Tagetes signata humila*, and never was anything more appropriately used. Well filled vases, &c., gave a beauty and grace to this pretty piece of lawn, that could hardly be appreciated by a simple description. Our engraving will give a very good idea of Floral Hall, and may be of service to committees and others in future years. The design, in fact the whole thing, was devised and executed by the favorite seedsman and florist, James Vick, of Rochester, to whom the thanks of the officers of the Society, of exhibitors, and the delighted thousands who witnessed the tasteful display, were most unanimously awarded.

THE DISPLAY OF FLOWERS.

The exhibition of flowers has not been equalled by any exhibition made by the Society in a great many years, in fact; the display was gorgeous. The principal exhibitors were James Vick, Ellwanger & Barry, and Frost & Co., of Rochester, in the professional list, and Mrs. Van Namee of Tomhannock, and C. W. Crosman and William Lyday of Rochester, amateurs.

Mr. Vick made a grand display of cut flowers, and his collection well merited the first premium, which he was awarded. His exhibition of gladiolus was magnificent, numbering nearly one hundred varieties of the choicest sorts. Such a display is not often witnessed. Pansies, Asters, Zinnias, &c., were very fine, and the Dahlias very finely formed, and of the newest and choicest sorts. Ellwanger &

Barry made a very creditable exhibition of pot plants, many of them foliage plants of great beauty; also, a creditable exhibition of roses for the season. Frost & Co. also exhibited a good collection of pot plants and cut flowers, among them some of the new Geraniums, well worthy of notice.

The Collection of Fruits,

Like that of flowers, was very good. There were sixteen entries of apples, those of Ellwanger & Barry, Rochester (forty varieties), and E. Ware Sylvester, Lyons, being very fine; the latter taking the second premium on forty and the first on twenty sorts. Of amateur exhibitors, A. Wilder and R. H. Brown, both of the town of Greece, were leading exhibitors. In pears, Ellwanger & Barry showed for exhibition only, a very complete assortment, embracing 201 varieties. The same firm, together with W. S. Little, and Frost & Co., both of Rochester, were the chief competitors for the professional prizes, making a good display. In the amateur class, John H. Bell, Brighton; J. S. Clarke, Greece, and James Spratt, Rochester, had excellent collections. In plums there was less competition, Ellwanger & Barry having the largest collection, and Dr. Sylvester the best variety. Of quinces the show was particularly good, both from the professional cultivators already named and from amateurs; among the latter, S. L. Eaton and E. S. Hayward, both of Brighton, who had very fine specimens. Of peaches there were very few entries, and very few plates to be seen.

The show of grapes was large, and it is evident that one of the chief attractions in the fruit department at present, to every one, is the grape. Ellwanger & Barry took the first prize for the best collection of native grapes, exhibiting forty-one varieties; Frost & Co. taking the second prize, with thirty-four varieties. The premium for the best single variety was awarded to the Pleasant Valley Wine Company, Hammondsport, for Iona. Collections of grapes were likewise shown by C. W. Seeley & Co., of the Rochester Central Nurseries, twenty-one varieties; Hoag & Co., Lockport, twenty varieties; Pleasant Valley Wine Company, and Godfrey Zimmerman, each eight varieties. Of new varieties, Ferris & Caywood had the Walter, Dr. Grant the Eumelan, a new black grape, and F. M. Perrin, Dansville, a seedling, in appearance like the Delaware. In the amateur class, for collection of native grapes, James M. Edmonds took the first prize, J. S. Clarke, second; best one variety, James M.

Edmonds, for the Delaware. For the best collection of foreign grapes, grown under glass, Thomas Paul, Rochester, took the first prize, with eight varieties; J. L. Spofford, Westchester Co., the second prize, with four varieties. The grapes of Mr. Spofford were superior to the grapes in the first collection; in fact they were splendid, but there being but four varieties only, they were placed second. The prize for the best dish was awarded to Thomas Paul. John Fisher, Batavia, sent ten bunches of foreign grapes (for exhibition only), that were magnificent, both as regards bunch and berry.

David Bushman took the first prize for the best peck of cranberries. A so-called new Perpetual Prolific strawberry was on exhibition, called Maximilian Prolific, which is thought to be nothing but a very old variety of the Red Alpine.

Implements and Machines.

The display of agricultural implements and machines has rarely been equalled; never excelled. This is all the more gratifying, as the premium list has been so modified as to subject these articles to a more searching test than ever before, and no cash prizes are offered. The award of a few dollars to a manufacturer of a good implement or machine is nothing in comparison to the opportunity afforded him of exhibiting it to tens of thousands of the most enterprising farmers in the State. When a prize is awarded by the New York State Agricultural Society, it should mean something; and it does.

Thrashing Machines.

We have never had a better exhibition of horse powers and thrashing machines. Many of them were operated on the grounds and were constantly surrounded by crowds of interested spectators. Nearly all the leading manufacturers of these machines in the State were represented; both of the railway horse power machines, and also of the sweep; the horse power machines with straw carriers, &c. These machines are too well known to need description.

Steam Engines.

Messrs. A. N. Wood & Co., of Eaton, and Messrs. Clute Brothers, of Schenectady, exhibited portable steam engines which attracted unusual attention. It is evident that farmers are turning their thoughts to the subject of substituting steam for horses in the heavy and tedious work of thrashing. These machines are at work in vari-

ous sections of the State, and give good satisfaction. Those who make a business of going round among the farmers with a large thrashing machine, will do well to examine the merits of these steam engines, and to ascertain the advantages of using them instead of horse powers. Farmers, we think, are prepared to give the preference to steam driven machines. None but large farmers can afford to set up a steam engine for their own exclusive use, but there is no reason why those who do the thrashing for a neighborhood should not use a ten horse portable steam engine instead of the ordinary ten horse sweep power. It will thrash faster and cheaper, and small farmers would not have to exchange horses, as they now do, with their neighbors. The horses, at any rate, will be glad when thrashing is done by steam. A ten horse power engine costs about $1,000. It will pay a high rate of interest on this sum.

Potato Diggers.

As population becomes more and more concentrated in cities and villages, potato growing will become more and more a specialty in those sections peculiarly adapted to the production of the best quality of potatoes for table use. This is the case much more than formerly. There are sections, where from ten to twenty per cent of the land is devoted to this crop, and we know cases where on a hundred acre farm, sixty to seventy acres of potatoes are grown. It is not a difficult matter to plant and cultivate such a large crop, but digging is a slow, tedious, and expensive operation, and it is difficult to find a sufficient number of laborers to secure the crop during the short period that intervenes between the ripening of the late and most profitable varieties, and the closing of the canals, or at least before there is considerable risk of the potatoes being frozen. This was particularly the case the last autumn. There is a felt necessity for a potato digger, and the man who will give us one is sure of a fortune. There were a dozen or more potato diggers exhibited at the fair, and we may well hope that we shall soon have a machine that will do the work. As yet, we have seen nothing that fully meets our wants, but each year adds some improvement to those in use.

Ditching Machines.

The able report of the special committee on ditching machines, renders it unnecessary to say much on this subject, but we cannot but chronicle the fact, that *underdrains three feet deep can now be*

cut by horse power. That some further improvements may be needed to enable the Heath ditching machine to work on different kinds of land, may be probable. But still, ditching by horse power is an accomplished fact, and we heartily congratulate the worthy and persevering inventor on his great success. Like other inventors, he has had to struggle with difficulties with little aid and encouragement, but we trust he will now have no trouble in introducing the machine. It is much needed. We think farmers would be glad to let out the work by the rod to men who have had experience, and who would go round digging drains with a machine. It would be a great advantage to farmers if they could find men who *understand* how to make drains and lay tiles, and who would do the work thoroughly and faithfully. Half the underdrains now made are comparatively useless, where the farmer does not do the work himself, or give it his undivided personal attention. Let us have skillful and intelligent men to do the work with the aid of a good ditching machine, and the work of underdraining will take a new start.

Corn Huskers.

Another highly gratifying fact brought out by this exhibition is, that we have at length a machine for husking corn that promises to be entirely satisfactory, so far as the operation of husking is concerned. At the State fair held at Saratoga in 1866, a husking machine was exhibited which we described in the Transactions for 1866, page 77. At Rochester, three husking machines were exhibited differing somewhat in minor details, but all on the same general principle as that shown at Saratoga. The report of the committee gives an interesting description of them, and it is not necessary to say more than to call the attention of the manufacturers to the importance of providing some simple and portable horse power, by which the husking machine could be worked in the field. Till this is done, it will be necessary to tie the corn in bundles, not too large to be conveniently handled, and draw them to a husking machine at the barn as we do wheat. There are obvious objections to this plan, and a better way will be to husk the corn in the field, taking say, three rows of stooks at a time. The machine could be drawn on the side of the center row, and the rows of stooks on each side be pulled by hand to the machine. An arrangement somewhat resembling that which works the Heath's ditching machine might be contrived for this purpose. When this is done, there can be little doubt that we shall soon do all our husking by machinery.

Self Binding Reaper.

Gordon's "Self Raking and Binding Harvester" is another of the remarkable inventions shown at the fair. At this season of the year it could not be subjected to trial in the field, but the binding part of the machinery was in operation every day during the exhibition, and was witnessed by thousands of interested spectators. That it will bind wheat and other grain as well as it can be done by hand, there can be no doubt. The only question that arises is whether a machine as rigid and complicated as one would suppose such a machine must be, can stand the work without frequent repairs. That it will cut, rake and bind wheat at one operation, and do it well, is an undoubted fact. The machine is the invention of J. F. Gordon of Michigan, and is to be manufactured largely for the next harvest by James F. Gordon & Co., Rochester, New York. We wish them abundant success. For description see the report of the committee.

Plows.

The exhibition of plows was fully equal to that at any previous fair. Among those which attracted unusual attention, were the steel plows of the Remington Agricultural Works, Utica, New York. Many farmers seemed to be convinced of what is undoubtedly a fact, that such highly polished steel plows, other things being equal, must run easier and do better work, especially when the soil is at all wet in the spring, than ordinary cast iron plows, and be far less likely to clog. Another advantage is in the saving of points. The first cost of the steel points is greater, but they can be sharpened by a blacksmith and will last for years.

Holbrook & Small, Boston, Mass., exhibited their celebrated plows of different patterns. As the great prize-takers at the Utica trial in 1867, they attracted much attention.

W. & Geo. Wiard, of East Avon, Livingston county, made a good display of their excellent iron-beam and wood-beam plows, with jointers. There are no more popular plows in Western New York, especially for heavy land, than these.

Alden & Co., of Auburn, also showed a number of very superior steel and cast iron plows. Lord & Becker, of Watertown, also showed some excellent steel plows, and it is evident that steel plows are becoming more popular. R. H. Allen & Co., New York, and many other well known manufacturers showed a number of excellent plows of different patterns.

Cultivators and Horse Hoes.

The term cultivator and horse hoe are often used to describe the same implement. It would be convenient to confine the term cultivator to implements used for stirring the soil *before* planting and seeding, and the term horse hoe to implements intended for stirring the land between the rows of plants. The well known and almost venerable Ides two-horse cultivator may be taken as a sample of the former. This cultivator was exhibited at the fair, and though we have now many improvements, nearly all of them embrace some of its leading features. The principal objection to this cultivator is that the teeth are too broad, when the object is simply to stir and pulverize the soil, and that they strike the soil too abruptly. The cultivator would do just as good work if the teeth pointed forward so as to strike the soil more obliquely. Another objection to our cultivators is that they are intended for two horses, while it is just as easy to drive four horses abreast as two, and thus save the time of one man.

"Anderson's even-balanced, vibrating two-horse cultivator," a Canadian invention and quite popular among the farmers of the province of Ontario, was exhibited by J. & S. Snow, of Rochester, N. Y. It has many excellent features, and, as it has an extension axle, additional teeth might easily be attached, so that it could be used for four horses and take a wider breadth. By taking out the middle tooth, this cultivator is converted into a horse hoe for cultivating between rows of corn or potatoes, using two horses and taking two rows at a time. It is a very efficient implement, does not clog and will break the land thoroughly as deep as it has been plowed. Price $40.

Howe's two-horse cultivator, manufactured by Fords & Howe, Oneonta, N. Y., which obtained the gold medal at the Utica trial, was exhibited, and attracted much attention. There can be no doubt of its efficiency for cultivating corn and potatoes, and one man can accomplish double the work he can with a one-horse cultivator, with far greater ease to himself, and it is claimed that it can be run as close to the plants, which is perhaps somewhat doubtful. Price $50.

The Remington Agricultural Works, Utica, N. Y., showed their well known two-horse cultivator, with steel teeth. It is an easy running implement and very efficient, especially on light soils.

The same firm also exhibited a number of one-horse cultivators, or horse hoes, of different patterns, all with steel teeth, and all capable of doing admirable work. Their celebrated "Johnston Cultivator"

has narrow teeth, and is adapted for thoroughly pulverizing heavy land. For light soils, they have similar cultivators, with wider teeth. Side blades, for hilling, are or can be attached to all their cultivators.

Alden & Co., Auburn, N. Y., exhibited their well known thill horse hoe, which took a gold medal at the Utica trial. They now make teeth, of various patterns, to adapt them to different soils. They have also made an improvement in the form of the side teeth, which allows them to be run close to the rows without disturbing the roots of the plants.

Harrows, Rollers, &c.

Nishwitz' Pulverizing Harrow, which received the gold medal at the Utica trial, was exhibited. It is, doubtless, a very efficient implement for preparing an inverted sod for the seed.

A combined harrow and cultivator, recently invented and manufactured by N. Starr, Jr., & Co., Homer, N. Y., promises to be a very useful implement. It is in the form of a hollow square, drawn with one of the angles foremost. The joints work on a pivot, and the harrow adapts itself to the ridge or dead furrow, or other uneven surfaces. We should like to have seen it in operation. Price of 30-tooth harrow, sixteen dollars; with cultivator attachment, thirty-two dollars.

John E. Morgan, of Deerfield, N. Y., exhibited his well known harrow, and also one with chisel-shaped teeth, and to which handles are attached, which must be a very efficient cultivator. It is also used, we are told, for digging potatoes.

We like to see implements introduced which lessen the hard work of farming, and are glad to see a harrow furnished with wheels and a seat for the driver, as is the case with Baker & Hoyt's Sulky Harrow and Quack-Puller, manufactured at La Fayette, Onondaga county, N. Y. In appearance it resembles, somewhat, an ordinary drill, long harrow teeth taking the place of the tubes. As in a drill, each tooth works independently, and thus adapts itself to inequalities of the surface. Price fifty dollars.

General and Combined Implements.

We find it impossible to enumerate half of the valuable implements on the grounds, and shall attempt nothing more than to allude to a few that particularly attracted our attention.

Marden & Lines, Farmersville, N. Y., showed, for the first time, a combined machine for "planting, hoeing and digging potatoes,"

which is asking a good deal from one implement. It will also make ridges for root crops "better than any double mould-board plow." In doing this, the mould-boards are set so as to draw the soil with a ridge in the center. The shares, mould-boards, &c., are made of steel, and it looks like a useful implement. For digging potatoes, it has two plows in front for throwing away the soil from the rows, followed by a broad, flat digger twenty-two inches wide, with twelve steel fingers behind, that shake rapidly. It seems as though it would do good work.

A somewhat similar implement, invented by J. C. Clements, Kenduskeag, Me., is designed to make drills for potatoes, and cover them after the potatoes are dropped. It is also used as a cultivator for hoeing the crop, and will throw the soil from the sides of the hill and dig the potatoes, but has no arrangement for shaking the dirt from them. Price twenty dollars.

A new Stump Puller was exhibited by George W. Pussey, Hammonton, N. J., which is a very powerful and simple machine, readily moved about, and is worked by hand. Two men will raise 2,500 pounds with it. Price sixty dollars.

Extensive exhibitions were made by Horace L. Emery & Son, and Wheeler, Melick & Co., both of Albany, comprising the Horse Powers, Thrashing Machines, &c., of their manufacture, so long and favorably known to the public. Messrs. E. & Son also showed their saw-mill attachments, a portable cider mill and press, the Albany corn and seed planter, and other articles. The Palmer Horse Fork, Judson's Mowing Machine Knife Grinder, and Russell's Corn Husker, were shown by Wheeler, Melick & Co. L. A. Aspinwall, Ireland's Corners, showed his Potato Planter and Digger, and Strong & Douw, Albany, had True's Potato Planter, which was fully described in the Transactions for 1866.

There was a splendid display of grain drills, and some excellent plaster sowers and manure distributors, many of which have been noticed in former reports. The same is true of fanning mills, hay and cornstalk cutters, &c. Of the latter class of machines, one exhibited by the Daniels Machine Company, Woodstock, Vt., attracted much attention. It was chopping up brush (limbs of trees, &c.,) an inch or so in diameter, in the same way that an ordinary cutter chops cornstalks. Anything that will economize brush and enable us profitably to get rid of this eyesore and nuisance, will be welcomed by all who desire neatness on the farm. The decay of

brush in the fields and fence corners is one great source of the fungus-blight that does so much damage to our fruits.

Alden & Co., Auburn, exhibited Hollingsworth's Adjustable Spring Steel Tooth Sulky Rake, which received the gold medal at the National trial at Auburn. Each tooth is independent, and can readily be adjusted for different kinds of work, from raking heavy green clover into winrows to raking stubbles. The addition of a separating board between the teeth and wheels is a valuable improvement; preventing the hay from winding round the axle.

D. R. Prindle, East Bethany, N. Y., exhibited his well known agricultural steamer, showing, in practical operation, the number of uses to which it can be applied, such as boiling a pail of water in a few minutes, cooking potatoes, steaming hay, &c., &c. It is safe, easily managed, and one of the most useful things that can be had on the farm. It is manufactured by E. E. Sill, Rochester, N. Y.

In Mechanics' Hall there was a large display of machinery in motion, the power for which was from an engine erected by Woodbury, Brothers & Co., Rochester, which excited much favorable remark for the stillness with which it ran and the perfection of its workmanship.

House Heating Furnaces.

There is nothing which adds so much to the comfort and charm of country life as a cheerful wood fire on the hearth. In our cold climate, however, even with double windows, an open fire is insufficient to warm a room. What we need is a furnace and an open fire. This is the perfection of house warming. The furnace affords heat with comparatively little labor, and the open fire gives the best of ventilation. Wood is becoming scarce, but there are few farmers that cannot grow enough wood at least to supply one or two open wood fires on the hearth. Stoves are an abomination; they are unhealthy; it requires constant care to supply them with wood; and when there are children the good mother is continually fearing that their little hands will be burned. No one will regret when they are banished from every American farm house.

The House Heating Furnace, manufactured by Messrs. Boyd, Gormonzinger & Co., of Rochester, to which the committee awarded a large bronze medal, is a new invention and a great improvement over the old furnaces. The inventor claims, and we believe justly, "to have overcome, at last, the difficulty which has perplexed fur-

nace inventors for the last twenty years, and has succeeded in making a furnace with an air chamber or body inside of the fire chamber proper." Through this inside air chamber they pass a current of cold air into the air chamber above. It is constructed entirely of cast iron and in one piece, and of such a shape as to throw the flame and smoke from the fire directly to the outer edge of the furnace to two radiators above; and these two radiators are so constructed that the flame is made to pass back and forth before passing into the smoke flue. In this way a large radiating surface is obtained and the heat economized. There are several other valuable points which it is unnecessary to mention. Those who have used these furnaces speak of them in the highest terms, and we can recommend them to the farmers of the State as certain to give entire satisfaction.

Messrs. Perry & Co., of Albany, exhibited their base burner furnace and were awarded the large bronze medal.

DISCUSSIONS IN THE EVENING.

The subject for discussion on Tuesday evening was, "Wheat, its culture and varieties, and the adaptation of different varieties to different soils and situations."

Joseph Harris, Moreton Farm, Rochester, opened the subject as follows:

When this subject was selected for discussion, it was expected that a distinguished botanist of New York would have favored us with his views on the origin of the different varieties of wheat, and their adaptation to different soils and different modes of treatment and manuring. No one can regret more than I do that, owing to other engagements, this gentleman is not here to open the discussion on this important subject.

On my own farm I have not, till this year, attempted to raise any of the choicer varieties of wheat. I have been waiting till I could get the land in good condition. There is little chance of growing a good crop of choice white wheat on poor, half-tilled, weedy land. Animals and plants adapt themselves, sooner or later, to the conditions in which they are placed. Animals that have an abundance of food at all seasons of the year, with necessary shelter, soon manifest a capacity for taking on flesh rapidly; and in the hands of a judicious breeder this capacity, in the course of a few generations, becomes an established quality. Such a breed will not stand starvation as

well as those which have always been accustomed to scanty and uncertain fare. It is so with wheat. A variety that, with a sufficient quantity of appropriate food, will produce forty pushels per acre, will not do as well on poor land as a variety that is incapable, even on the richest land, of producing over twenty-five bushels per acre. It is vain for a farmer to expect a good crop of wheat on poor land, because he has taken pains to obtain a choice variety of seed. He must first get his land in high condition, and he should then select the best variety he can find. If he will not, or cannot, put his land in good condition, he had better select a variety of very inferior quality. The poorer it is the more likely is he to obtain a crop.

It is far more profitable to have the land better than the variety, than to have the variety better than the land.

The Mediterranean wheat, when first introduced, was very inferior in quality and productiveness. It was probably the offspring of poor land and hard treatment. When sown on the superior wheat soils of this country, it rapidly improved, and it is probably to-day the most extensively grown variety of wheat in the United States. The fact does not speak well for our agriculture, though it does for our common sense. We had better be content with Mediterranean till our land is in better condition.

I know a farmer in this neighborhood who raised this year over one hundred dollars worth of Soules wheat per acre, and another who raised only twenty-five dollars worth of Mediterranean. For the latter to sow Soules wheat in hope of getting a good crop, would be as absurd as to turn a flock of Cotswold sheep upon a poor, hilly pasture, where Merinos could hardly find a scanty subsistence.

But I must leave this branch of the subject to those who have had more experience.

In regard to the culture of wheat, one rule may be laid down that it will be always safe to adopt: Never sow wheat on land that is not in good order. There is no profit in a poor crop of wheat.

If a manufacturer has a quantity of goods on hand, I can understand why he might be willing to sell them below the cost of production, but to deliberately pay out one hundred dollars for material and labor to produce goods that he knew would not sell for ninety dollars, would be a very unbusinesslike proceeding. And yet this is what some farmers do. I have done it myself more than once, but I tried to console myself with the reflection that I was improving the land.

Those of us who do our own work are apt to think, when we sell ninety dollars worth of wheat, we have made ninety dollars, while, in point of fact, the wheat may have cost us a hundred. This habit of regarding all the money we get as profit, is one source of poor farming.

The expense of raising and harvesting a crop of wheat is not far from twenty dollars per acre. With a yield of ten bushels per acre, at two dollars per bushel, all the profit we make is the straw, say 500 pounds, at four dollars per ton, or *one dollar an acre.* If we raise twenty bushels per acre, or forty dollars, the *profit* is twenty dollars per acre, or *twenty* times as much as from a crop of ten bushels per acre, for the extra straw will nearly pay for the extra expense of thrashing, and the land will be in enough better condition to pay for all other expenses. Double the crop once more, and raise forty bushels per acre, or eighty dollars, and the profit is sixty dollars an acre, or *three* times as much as from the twenty bushel crop, and *sixty* times as much as from the *ten bushel* crop! In point of fact, however, it is more than this, for a crop of this kind would probably be choice white wheat, worth from twenty-five to fifty cents a bushel more than the other.

In the culture of wheat, therefore, the great aim should be to get a large yield per acre. Forty bushels per acre once in four years is vastly more profitable than ten bushels per acre every year. How this can best be done depends on circumstances, and I hope the discussion which is to follow will throw light on this point.

It will sometimes pay to go outside the farm for artificial fertilizers or cattle foods. At the present time, owing to the high prices of wheat, barley and beef, it will pay well. But, as a general rule, we must depend on the farm itself. Ordinary wheat land, if means were taken to keep it clean, would produce ten bushels of wheat per acre every year, and our richer calcareous loams would produce more. In other words, the soil, the rains, the dews and the atmosphere, furnish food for ten bushels of wheat per acre every year. On Mr. Lawes' experimental wheat field, at Rothamsted, the plot which receives no manure averages about fifteen bushels per acre. The yield on this plot, the past harvest, which, if I mistake not, is the twenty-sixth crop, was sixteen and three-fourths bushels per acre. This field is sown to wheat every year, and for twenty-six years the plot, which has been continuously unmanured, averages about fifteen bushels per acre. When fertilizers are supplied, the yield on some of the plots is twenty,

thirty, forty, fifty, and, in one instance, fifty-five bushels of wheat per acre.

We may assume, therefore, that a good wheat soil is capable of yielding from ten to fifteen bushels of wheat every year, without manure. The soil and the atmosphere furnish sufficient plant-food for such a crop. But ten bushels of wheat per acre every year will not pay. To keep the land clean, and to accelerate the decomposition of plant-food in the soil, and the absorption of ammonia from the atmosphere, it is necessary to plow the land once or twice, to harrow, cultivate, &c., as well as to furnish seed; and Mr. Lawes hoes the crop while growing.

If we could raise twenty bushels per acre every other year, it would pay much better. If thirty bushels every third year, it would pay better still, and if forty bushels every fourth year, it would pay much better still. The soil, the rains, the dews and the atmosphere, are capable of doing this very thing; or at least the facts named would seem to warrant such a conclusion.

Let those who doubt it ask themselves whether a rather heavy wheat soil, summer-fallowed for three years in succession, would not be likely to produce forty bushels of wheat per acre; or whether a year's growth of clover turned under, and the land well cultivated, and sown to peas the next spring and then turned under when in bloom, and the land cultivated and sown to peas again the next spring and turned under, such land would not be rich enough to produce forty bushels of wheat per acre. I do not say that we should get it, because there would be too much carbonaceous matter, but the land would certainly be rich enough. And yet all we have done is to avail ourselves of the annual supply of plant-food furnished by the soil and the atmosphere for three years, and let the wheat, the fourth year, have the whole for one crop.

I think there can be no doubt that good wheat land is capable of producing a crop of wheat of forty bushels per acre every fourth year without the direct application of a particle of manure. Mr. Lawes, on the average, from his unmanured plot, gets sixty bushels in four years, and not a pound of the grain or straw or chaff or manure of any kind is returned to the soil. It is done simply by good cultivation, and by not suffering a weed to rob the soil of plant-food.

One of the most experienced millers of western New York remarked, a year or two ago, that ever since the farmers began to manure their land, the wheat crop had deteriorated in quantity and

quality. It seemed a very strange assertion, but when he explained that the farmers had substituted summer-fallowing and plowing in clover by spring crops, and an occasional dressing of poor manure, it is easy to understand how it might be strictly true. It is not the manure that hurts the wheat, but the growth of spring crops and weeds that rob the soil of more plant-food than the poor, straw-made manure can supply.

We must either give up the practice of sowing a spring crop before wheat, or we must make more and richer manure, or we must plow in more clover. The rotation—corn, barley, wheat, is a very profitable one, provided we can furnish manure enough to produce eighty bushels of shelled corn, fifty bushels of barley, and forty bushels of wheat per acre in three years. This can be done, but we should either require a number of acres of rich low land, or irrigated meadow, the produce of which would make manure for the upland, or we would have to purchase oil-cake to feed out with our straw and clover hay, or we must purchase artificial manure. Unless this is done we must summer-fallow more, and plant less corn, and seed down all our grain crops with clover; the whole of which must either be plowed under or fed out on the farm, and the manure returned to the land.

I am inclined to think that we might summer-fallow, or rather fall fallow, for barley, with more advantage than for wheat. Autumn in this climate is much longer and pleasanter for work than the spring. Our so-called summer-fallows are often not broken up till the middle of June, and are sown to wheat the first of September. We have only ten weeks in which to work them, and these include the busy seasons of haying and harvest. Give up sowing wheat, and we have ten weeks more in which to work the land before winter sets in; and it can be allowed to lie up rough for the frost to act upon it for another twenty weeks, and is then plowed again and sown to barley. Instead of a ten week's fallow, we get an exposure to the decomposing fertilizing action of the atmosphere for forty weeks or more. Sow this land to barley, and seed it down with clover, and we may expect a good crop; and the clover would almost certainly be splendid. Pasture this in the fall (not too close), mow it the next summer, pasture it the next, and then break up and sow to wheat at one furrow and seed down again. Wheat likes a firm foothold and a rather rough or cloddy surface; and a recently inverted clover sod, harrowed lengthwise and drilled in, comes as near the requisite condition as any other practicable treatment. The objection is that our land is

seldom clean enough; but the summer-fallow for the previous barley crop, if thorough, with the heavy crop of clover, will obviate this, and leave the land in admirable condition.

When ordinary clover sod is plowed in June for wheat, the practice formerly was to plow again as soon as the sod was suffciently rotted, and again immediately before sowing. Of late years, many farmers think it better to plow the land only once, keeping down the weeds by the use of the cultivator and harrow. Of course this is less labor, and it is contended that the crop is as good as from the three plowings, and sometimes better. A farmer from Indiana wrote me a few days since, that a neighbor had twelve acres of summer-fallow, half of which was plowed only once, and the other half plowed twice; the former yielded twenty-three bushels per acre, and the latter thirty-six bushels. The wheat sold for two dollars per bushel, and he thinks the extra $156 capital pay for three or four days work of a man and team. This is a point on which I should like to hear from those who have had more experience than myself. And another is in regard to the time of sowing. Does early sowing induce early ripening, and thus enable us to escape the midge? My impression is, that we are inclined to sow too early.

I know farmers who sowed, this year, the last week in August. The wheat is tall and spindling, and light colored. I like to see wheat in the fall with broad, dark leaves, that spread along the ground, and not drawn up like crowded plants in a hot-bed. The more root growth and the less leaf growth we can get before winter sets in the better for the crop. Late sowing and manuring with some immediately available manure near the surface, will accomplish the object. I believe we are all pretty much agreed that drilling is better than sowing broadcast, and that we can save a peck of seed per acre. There can be no doubt, however, that to get all the advantages of drilling, the crop should be hoed in the spring, and it will be as soon as we have a good combined steerage drill and wheat hoe.

Mr. Crocker, of Broome, said, that formerly in his county they raised good crops of wheat, but after the advent of the midge, the culture of wheat was very generally abandoned. Farmers, however, were now turning their attention somewhat to wheat, and when the crop received proper culture the yield was good. It is a dairy county, and they keep many cows, and these furnish manure. Do not plow much land, but what they do plow produces good crops of grain. In raising wheat the first thing to be done is to underdrain

the land. This is essential. Their rotation is: clover sod turned over for corn; the land is rich enough without manure; after the corn sow oats; then wheat. His plan is to turn over the oat stubble immediately after harvest. In a week or two cultivate the land to kill the oats and weeds; then draw on to it some well rotted pulverized barn yard manure; usually sows the wheat the first week in September; but considers it sufficiently early till the 25th of September. For the last four years he has succeeded in raising good crops of wheat. He mentioned a field of seven acres that was manured for corn, that yielded sixty bushels of shelled corn per acre. The oats following yielded 115 bushels per acre, and the wheat after the oats, without any additional manure, twenty-five bushels per acre. Has raised 200 bushels of potatoes per acre, and sowed the land after the crop was dug, in October, with red wheat. Had twenty-five bushels per acre. He drills in the wheat. Prepares his seed wheat with slacked lime. Has tried ashes and plaster on wheat, and the yield was a little better. Can use lime, ashes and plaster with profit.

Mr. Foster, of Seneca, would like to hear from those who had used guano, and especially in regard to the quantity per acre. He knew a case where 250 pounds of Peruvian guano per acre produced rust on the wheat. The land was rich and the growth very heavy. In regard to the time of sowing wheat, he alluded to a case where wheat last year was sown October 15th. It was an excellent crop. Does it require more seed when sown so late?

Rufus King, of Wyoming, had sown at different times, from August to October. Early sown wheat does not do as well as that sown later. Last year he had an excellent crop of wheat after corn. Manure sometimes produces rust. Lime is an excellent manure to prevent rust and improve the yield and quality of the grain. Subsoiled a field some years ago, and have got crops since as heavy again both of grass and grain.

Mr. Crocker would prefer to sow one and a half bushels of seed with a drill, than two bushels broadcast. Once when he was away from home, his man not knowing how to manage the drill, sowed part of a field broadcast. The part drilled yielded from five to eight bushels of wheat per acre more than the part sown broadcast.

Mr. Terry, of Cayuga, asked if the roots had not a better chance to spread when sown broadcast?

Mr. ——— of Hamlin, Monroe county, had used a drill for many years. If the land is dry, drilling is much the best. It saves seed,

and it is better not to have more plants than can mature. On wet land, however, drilling will not answer. It is worse than sowing broadcast.

Mr. King said that wheat was often injured by the thrashing machine. Better thrash what is needed for seed with the flail. Three pecks is better than a bushel and a half.

Mr. Crocker said one point had not been alluded to—protection of woods, &c. Has used straw on his wheat as a mulch. The plants come through. The straw rots and forms manure. He likes the practice and shall continue it. Spoke highly of the Wicks variety of wheat. It is a bearded wheat, white and early.

A gentleman from Cayuga said that this variety was raised extensively in his neighborhood, and it was much liked. Will yield five bushels per acre more than the Mediterranean. The latter falls down; the Wicks stands up straight. The Treadwell has been tried but does not do as well as the Wicks.

Many other gentlemen spoke on this subject, but we were not able to ascertain their names. A case was mentioned where winter wheat was harrowed in the spring (May 10th), and the yield was far better on this part of the field than where it was not harrowed, although the harrowed part was the poorest land.

Mr. Wadsworth, of Wayne, sowed oats after corn, and wheat after the oats. Yield, twenty-five bushels per acre. Summer-fallowed wheat yielded about the same. When wheat is sowed with clover, it should not be rolled.

Mr. Deitz, of Chambersburg, Pa., favored the meeting with an account of his experiments in regard to the different varieties of wheat, which we may be able to publish in detail when they have been more thoroughly tested. He found that the dark foreign wheats improved the most. After a few years, they become red and amber. The white varieties degenerate. From the 20th of September to October 1st, is the best time for sowing. Wheat needs good roots. Southern varieties of wheat make a rapid growth; northern, a slower growth.

Discussion on Wednesday Evening.

The subject selected for discussion this evening was "Clover as a renovating crop, and how to use it."

The Hon. A. B. Conger, of Rockland, occupied the chair. He announced that the gentleman expected to open the discussion was

unfortunately not able to be present. The subject was a very important one, and he hoped that gentlemen would express their views freely.

Mr. Hawley, of Onondaga, had supposed that this subject hardly needed discussion ; supposed everybody knew that red clover was the best renovating crop. It had been demonstrated that plowing in clover was the readiest and cheapest method of enriching the land and of bringing up worn out soils.

Mr. ———, of Monroe Co., questioned whether turning under a ton of clover hay, worth at the present time in this city twenty dollars, is the cheapest method of maintaining the fertility of the soil. Better feed it to stock on the farm, and apply the manure to the land, or sell the hay and buy artificial or stable manures. He thought the great benefit from clover was from the large quantity of roots left in the soil.

Mr. Haywood, of Poughkeepsie, had dug a bushel of clover roots from a space six feet square, or 1,210 bushels per acre.

Mr. ———, of Painted Post, Steuben Co., had farmed for thirty-nine years, and thought a great deal of clover. Commenced sowing it the second year of his farm life, and had continued to do so ever since. Clover, plaster and manure will keep up the fertility of the land. Has renovated several farms in his life by growing clover, good tillage, &c. Has renovated them in this way till they would produce from eighty to one hundred bushels of oats per acre. Plows eight inches deep. Did not know of any cheaper mode of renovating land than by growing clover.

Mr. ———, of Monroe, asked if a crop of clover that would make one and one-half tons of hay, is worth thirty dollars to plow under as manure.

Mr. Hawley, of Onondaga, mentioned a case where turning under a crop of clover produced as large a crop of tobacco as the heaviest dressing of manure. If a clover sod is not turned over in the spring for corn till it is time to plant, there will be quite a crop of clover, and this will be of great benefit to the land, and costs little or nothing.

Mr. Crocker, of Broome, seeded his land with two-thirds clover and one-third timothy ; has kept a dairy for twenty-five years ; could not keep up his land without clover. The hay when properly cured is better than any other ; it will give more milk than any other fodder, except green cornstalks.

Mr. ———. In his section a thoroughly worn out soil would not grow clover; on poor, sandy soils, the clover heaves out in winter; we gain little or nothing from clover; it puts back little more than it gets from the soil. His plan is to sow rye; turn it under in June and then sow wheat in the fall and seed with clover. As soon as land will grow clover there can be no doubt that growing clover is the cheapest method of renovating a farm.

Mr. Keese thought if we sold our hay and used the money to buy manures we should gain more than if we turned under the clover. He thought highly of clover; it protects the land more than any other crop we raise; should try to raise large crops; the heavier the crop the cleaner and mellower it leaves the land.

Mr. Hawley, of Onondaga: When we turn under clover we turn under all that it has obtained from the atmosphere. If you sell hay you soon run down the land. In Erie county he knew farmers who had made a practice of selling hay in Buffalo, till their land was not worth half price.

Mr. Lord, of Yates, purchased a farm five years ago; it had been rented out and was run down. In order to bring it up he raised clover hay and fed it out to sheep; turned under the sod and sowed barley, and wheat afterwards; seeded again with clover; keeps his manure in the basement till fall, and then applies it as a top dressing to grass land that he intends planting to corn in the spring. His farm is improving under this treatment; thought it a poor plan to plow under clover. It makes excellent hay and the hay fed to sheep makes good manure, and this used as a top dressing on grass enriches the land.

Mr. Stoddard commenced farming on new land five years ago. It was birch and maple land. He cleared it up himself. Part of his land received the wash from higher land. He cleared it and sowed oats and seeded it down with clear timothy. Expected a great growth of grass, but had not over half a ton of hay per acre. The next year it was no better. He then top dressed part of it with manure, and the next year the timothy was as tall as his shoulders, while the part not top dressed yielded not half a ton per acre. The next season the part top dressed was half clover. He now sows clover with his timothy, and his crops are good. Believes you cannot raise good timothy with clover. Plaster will bring in clover where no clover seed has been sowed.

Mr. ——— asked what the money value of clover was to plow under?

Mr. Inglesbe of Washington: Clover and other large leaved plants draw largely of carbon from the atmosphere. It has also deep roots and brings up food from the subsoil. The question is as to the money value of clover *on the farm.* Does not think clover hay is worth twenty dollars per ton to plow under. In the county where he lives there are thousands of farmers who have grown rich by growing and selling hay, and the farms are richer now than formerly. They keep up their lands without growing clover. They cut but one crop of hay in a season and do not pasture the aftermath. The second growth enriches the land more than the first crop exhausts it. He mentioned a case where this plan had been pursued for seventy years.

Mr. Stewart of Erie: Clover delights in ammonia. It contains twice as much nitrogen as timothy. Plaster attracts ammonia from the atmosphere. It is probably true that clover may be fed out to stock and the manure made from it be nearly as valuable as if the clover had been plowed under.

Mr.——— fed out twelve tons of clover hay to sheep; drew out twenty-five loads of dry manure. It took twelve acres to produce the hay and the manure was all put on two acres. He thought this would not bring up land; when turned under we get all there is in the clover.

Mr. Taylor, of Yates, was much pleased with the course the discussion had taken. In regard to the question whether we could raise clover seed without impoverishing the land; he had a field of ten acres that he pastured till the middle of June; he then let it go to seed, and had two and one-half bushels per acre. Another field he mowed June 26th, and had two tons of clover hay per acre. This, also, was allowed to go to seed, and he had a large crop, and now, (October 1st), the growth of the young clover seemed to indicate that the land was not exhausted. But he should perhaps be able to tell better at the discussions next year; he believed, however, that we can grow clover seed and still enrich the land.

Mr. Keys, of Monroe, sowed a ton of plaster on twelve acres of clover, after the first crop was cut; it produced thirty-nine bushels of seed, which he sold for seven dollars per bushel; another twelve acres not plastered, produced only twelve bushels of seed; would advise farmers to raise their own clover seed.

Mr. Stewart, of Erie, in answer to a question: The weight of clover roots is about double the weight of the crop; in regard to plaster

bringing in clover; it does not attract clover seed; it quickens the seed already in the ground and causes it to germinate. One great benefit of clover is in drawing carbonic acid from the atmosphere. All broad-leafed plants do this more than narrow-leafed plants, like timothy; hence timothy is more exhausting to the land.

The chairman, Hon. A. B. Conger, said that if there were no other gentlemen who wished to speak on the subject, he would consider the meeting closed after briefly alluding, by way of summing up, to some of the main points which had been discussed. The debate has been eminently satisfactory. Many interesting facts have been educed. We may venture to add a few of those which would have been more ably stated by the gentleman appointed to open the discussion (Hon. Geo. Geddes), had his health permitted his presence with us to-night.

The use of clover is to be viewed, as the question proposed for this evening's consideration admits of two main divisions, in a double aspect; first, in restoring to fertility worn out lands; and secondly, in sustaining its efficiency in our common rotation, where, as you well know, it is the precursor of the wheat crop.

A gentleman suggested you cannot employ clover as a renovator on soils which are so sterile that they cannot produce clover. In his dilemma, he commenced with rye. He might also have used buckwheat. Either will start the renovating process, which, once initiated, may be profitably followed by clover. Of course, there can be no benefit in sowing seed that will not sufficiently develop itself, or give you a burthen of green and thrifty growth for plowing in. Mr. Geddes' method of treating clover with plaster is well worth attention. He permits the young shoots to cover the ground before he applies plaster. This is scattered in a still day, when the dew is on the grass, by a machine which only consumes one bushel to the acre, or perhaps a peck in addition. The ordinary process of hand sowing requires at least two bushels. He has observed a grain of plaster resting on a moist leaf, and that leaf soon beginning to expand itself, and outstrip those to which the falling plaster did not adhere. The plaster, as long as it continues moist, absorbs from the atmosphere nitrogen, which is a large constituent of the clover plant, and the same authorities in agricultural chemistry who declare this truth, also tell us that when the plaster is removed to, or falls upon, the ground it liberates potash, so as to present it in a soluble form for the use of the plant. There can be, then, no question about the necessity of using this special manure in the treatment of the clover crop.

As to the suggestion thrown out here, that clover hay may be profitably exchanged for special manures, or sold for cash as an ordinary farm product, we might better first ascertain what is its feeding value. Chemical analysis teaches us that in every 100 pounds of well dried clover hay there is two per cent of nitrogen, of which there is scarcely one-tenth more in 100 pounds of good wheat grain. And as nitrogen is the great flesh forming principle, being the chief element in the albumen and fibrine of blood, flesh, &c, if the farmer sells his wheat at five cents a pound, or $100 a ton, he should get within ten per cent of this amount for his clover hay, as far at least as its flesh forming value is concerned. Can he then afford to sell or exchange it at the rate quoted in this debate, even taking the highest limit of twenty dollars per ton? Farmers have by instinct learned the value of this fodder for spring feeding, and they sell their timothy hay in preference, which, fortunately for the farm and its stock, is in greater demand for city use. In feeding his clover to his cattle he not only keeps them in better flesh, and makes the yield of his cows richer, but in the waste of the animal tissues thus enriched, his manure is rendered more valuable, especially if he saves its liquid constituents.

The manure thus made and duly husbanded, is of more value than the amount of artificial manures he could purchase for the proceeds of his clover crop; evidently much more so, if we estimate the saleable products of well fed stock.

If we turn our attention to clover as a plant, what is there raised on a farm that is more productive? For we must not merely look at the parts that are usually converted into food. In addition to its luxuriant forage, clover has a root, which, beyond its bulb, penetrates the subsoil to a depth of four to eight feet, in porous, deeply plowed land, bringing up mineral plant food and storing it in the bulb. If the subsoil is rich in potash or lime, the clover roots when plowed in, give the farmer a good top-dressing of these mineral manures, and without cost.

But aside from this, if we look at the clover bulb as mere waste of vegetable product, when a member of this Society gave this evening the number of bushels of roots he had picked from a small surface, perhaps neither he nor the Society was ready to compute, that, at that rate, the roots of clover plants as prolific as those he raised, would yield 1,210 bushels to the acre. Would any one doubt after such a statement, the value of a well cured, plaster-sown, clover crop, after

the part above ground has been stored, and that under has been plowed in, and sown to wheat? Why should any be cajoled with the stories of venders of super-phosphate, who do not know that it is of more use in the culture of turnips, clover, and all leguminous plants, than it is for any cereal?

This question put to-night to the farmers of the State, is of great importance to them. Enough perhaps, had been gained for present use, but the Executive Committee will be requested by the chair to continue the subject at a future meeting, when it is hoped that Mr. Geddes will be able to favor us with his elaborate experiments and well digested views.

Mr. ———, of Poughkeepsie, would like to ask of the chairman if this Society paid no attention to horticulture, or overlooked horticultural subjects in its discussions?

The chair: The State Society is established in the interests of horticulture as well as agriculture. The friends of the former art have measurably left our Society to devote itself to the latter; they have established separate associations, and doubtless with profit to themselves; and the State Society has been contented for many years to give what encouragement it could to horticulture in its floral tents at its annual fairs. He was happy to have the suggestion made at this time and did not doubt but that, on proper representations of general interest on the part of those who cultivated fruit and flowers, the Society would be very happy to resume its general control, and to give to horticultural subjects their proper place in its public discussions.

AWARD OF PREMIUMS.

TWENTY-EIGHTH ANNUAL FAIR, HELD AT ROCHESTER, SEPTEMBER 29, 30, AND OCTOBER 1, 2, 1868.

CLASS I—CATTLE.

No. 1. SHORT HORNS.

Hon. B. P. JOHNSON, *Secretary New York State Agricultural Society:*

Herewith we respectfully submit the following report of our detailed examination of Short Horns at Rochester, in September last. With the exception of *pedigrees*, we followed strictly the instructions of the Society; we satisfied ourselves, however, that the animal under examination was entitled to a Herd Book pedigree (either in the English or American book), but gave no extra credit for particular strains of blood; putting each animal under examination by every point separately, and making our figures at the time until we finished that animal; then to the next, and so on, until we had concluded the whole thirty-seven head. We studiously avoided adding any of them up, by which means we were ignorant as to the prize animals. This course we laid for ourselves in the beginning, for two reasons: First, saving of time; and secondly, to keep our minds clear and unbiased as to animals and owners, and to be able honestly to say to those making inquiry, that we were uninformed ourselves.

The result was arrived at by finding which entrance number had the highest amount of merit marks; not knowing the name of animal or owner until the figures pointed them out to us. In yearling heifers two numbers "tied," and one, of course, was entitled to the first premium. We placed the animals side by side, and gave it to the one our eye dictated to be the best.

We will further state, that we neither altered nor revised a single figure; therefore, the result was produced from first impressions. As to the correctness of our judgment, we do not presume to say, or that we have properly canvassed the merits in each and every scale in the points as contrasted with each other; but we sincerely say, that we have performed the arduous and somewhat unthankful duties to the best of our judgment and belief, and hope it may be satisfactory to a majority of breeders and "connoisseurs" in Short Horn Cattle.

The subject of judging Short Horns by a "Scale of Points" has been agitated many years in our Society without any practical result until last year. It was not a popular measure, and we are free to say that we were among the number of those doubting its success. One of us had the honor to be on this same committee last year, and the two year's practice leads us to the belief that from the knowledge, ability, and great experience of its author (one of our venerable ex-Presidents), that to alter it would be hazardous; we therefore, would recommend that they should remain as they are; "The Scale of Points as prepared by Francis Rotch."

October 22, 1868.

L. G. MORRIS, Fordham, N. Y.
THOS. BELL, Eatontown, N. J.

Bulls.

Aged Bulls.

Second premium, "Weehawken" (exhibition number 87), Walcott & Campbell, N. Y. Mills. Meritorious points, 675.

First premium, "Monarch" (exhibition number 89), C. K. Ward, Leroy, New York. Meritorious points, 693.

Two Years Old.

Third premium, (exhibition number 174), J. Emory Brown, Churchville, N. Y. Meritorious points, 508.

Yearling.

First premium, "Baron Booth, of Lancaster" (exhibition number 187), M. H. Cochrane, Compton, Canada. Meritorious points, 950.

Bull Calves.

Not worthy (exhibition number 175), J. Emory Brown, Churchville, N. Y. Meritorious points, 433.

First premium, "Baron of Geneva" (exhibition number 90), C. K. Ward, Leroy, N. Y. Meritorious points, 810.

Cows.

Three Years Old and Upwards.

"Grace Darling" (exhibition number 25), Walcott & Campbell, N. Y. Mills. Meritorious points, 935.

"Kirkleavington" (exhibition number 196), Ezra Cornell, Ithaca, N. Y. Meritorious points, 905.

"Princess 16th" (exhibition number 197), Ezra Cornell, Ithaca, N. Y. Meritorious points 935.

"Oenanthe" (exhibition number 12), A. B. Conger, Waldberg, N. Y. Meritorious points, 935.

"Flattery" (exhibition number 13), A. B. Conger, Waldberg, N. Y. Meritorious points, 878.

"Florence" (exhibition number 11), A. B. Conger, Waldberg, N. Y. Meritorious points, 845.

"Snowdrop" (exhibition number 182), M. H. Cochrane, Compton Canada. Meritorious points, 960.

Second premium, "Maid of Atha" (exhibition number 183), M. H. Cochrane, Compton, Canada. Meritorious points, 980.

First premium, "Rosedale" (exhibition number 180), M. H. Cochrane, Compton, Canada. Meritorious points, 983.

Third premium, "Sanspareil" (exhibition number 181), M. H. Cochrane, Compton, Canada. Meritorious points, 971.

"Hope 6th" (exhibition number 93), C. K. Ward, Leroy, N. Y. Meritorious points, 890.

"Hope 3d" (exhibition number 92), Chas. K. Ward, Leroy, N. Y. Meritorious points, 810.

"Ellery" (exhibition number 195), C. K. Ward, Leroy, N. Y. Meritorious points, 895.

	POINTS.	BULLS.						COWS, THREE YEARS OLD AND UPWARD.												
		AGED BULLS.		2 YEARS OLD.	YEARLING.	BULL CALVES.														
		Exhibition No. 87.	Exhibition No. 89.	Exhibition No. 174.	Exhibition No. 187.	Exhibition No. 175.	Exhibition No. 90.	Exhibition No. 25.	Exhibition No. 196.	Exhibition No. 197.	Exhibition No. 12.	Exhibition No. 13.	Exhibition No. 11.	Exhibition No. 182.	Exhibition No. 183.	Exhibition No. 180.	Exhibition No. 181.	Exhibition No. 93.	Exhibition No. 92.	Exhibition No 195.
Head	30	20	25	.....	25	10	25	20	20	20	20	20	15	30	30	25	25	30	20	20
Face	20	20	20	.....	15	10	15	20	10	20	15	20	15	20	20	20	15	20	20	20
Eye	20	15	15	.....	10	10	15	20	20	20	20	20	15	20	20	18	18	20	20	20
Horn	10	5	8	5	10	5	10	10	5	10	10	10	5	10	10	10	8	10	5	10
Neck	20	20	15	15	20	5	20	20	20	20	20	20	20	20	20	20	15	20	10	20
Chest	140	80	100	50	140	40	130	140	140	140	140	120	130	140	140	140	140	130	125	130
Brisket	50	30	35	25	50	20	40	50	50	50	50	35	50	50	50	50	50	50	50	50
Shoulder	40	30	35	35	40	10	40	40	35	40	40	40	40	40	40	40	40	35	30	35
Crops	80	60	50	70	80	40	80	70	70	80	70	65	55	80	80	80	80	80	65	80
Back, loins and hip	80	60	70	60	80	60	40	80	80	80	75	70	70	80	80	80	80	70	70	75
Rumps	50	35	40	40	50	25	50	50	50	50	50	50	40	40	50	50	50	30	25	50
Pelvis	20	15	20	15	20	10	15	15	15	15	15	20	20	15	20	20	20	15	20	20
Twist	30	30	5	15	30	15	20	30	30	30	30	30	25	30	30	30	30	30	25	30
Quarters	50	35	30	25	50	25	35	50	50	50	50	48	45	50	50	50	50	35	35	50
Carcase	40	30	35	20	40	20	30	40	40	40	40	40	35	40	40	40	40	35	30	40
Flanks	30	30	10	10	30	15	15	25	30	25	25	25	25	25	30	30	30	25	25	30
Legs	20	15	15	15	20	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Plates	30	20	15	20	30	15	20	30	30	30	30	15	20	30	30	30	30	25	25	30
Tail	20	20	20	20	20	10	20	20	20	20	20	20	10	20	20	15	20	15	20	20
Carriage	20	15	15	8	20	8	20	20	20	20	20	20	20	20	20	20	20	15	15	15
Quality	150	80	100	50	150	60	130	120	120	120	130	135	140	140	145	150	145	140	100	100
Coat	20	10	15	10	20	10	20	15	15	15	20	20	20	15	15	20	15	15	15	15
Udder	30	....	....	.....	.....	....	....	30	15	20	25	15	10	25	20	25	30	25	30	15
	1,000	675	693	508	950	433	810	935	905	935	935	878	845	960	980	983	971	890	810	895

Heifers.

Two Years Old.

Second premium, "Miss Margaret 3d" (exhibition number 184), M. H. Cochrane Compton, Canada. Meritorious points, 980.

Third premium, "Hope" (exhibition number 26), Walcott & Campbell, N. Y. Mills. Meritorious points, 935.

First premium, "Lucia" (exhibition number 198), Ezra Cornell, Ithaca, N. Y. Meritorious points, 990.

"Eleanor" (exhibition number 166½), C. W. Wadsworth, Geneseo, N. Y. Meritorious points, 833.

"Myrica" (exhibition number 15), A. B. Conger, Waldberg, N. Y. Meritorious points, 855.

"Zanara" (exhibition number 14), A. B. Conger, Waldberg, N. Y. Meritorious points, 770.

One Year Old.

First premium, "Lucy Curd" (exhibition number 199), E. Cornell, Ithaca, N. Y. Meritorious points, 985.

"Countess" (exhibition number 27), Walcott & Campbell, N. Y. Mills. Meritorious points, 930.

Third premium, "Nannie Williams 10th" (exhibition number 185), M. H. Cochrane, Compton, Canada. Meritorious points, 945.

"Melody" (exhibition number 161), C. W. Wadsworth, Geneseo. Meritorious points, 830.

Second premium, "Wharfdale Rose" (exhibition number 186), M. H. Cochrane, Compton, Canada. Meritorious points, 985.

Heifer Calves.

First premium, "Fidget 8th" (exhibition number 200), E. Cornell, Ithaca, N. Y. Meritorious points, 1,000.

Second premium, "Indian Queen" (exhibition number 28), Walcott & Campbell, N. Y. Mills. Meritorious points, 960.

"Moss Rose" (exhibition number 86), Walcott & Campbell, N. Y. Mills. Meritorious points, 915.

"Mistletoe" (exhibition number 164), C. W. Wadsworth, Geneseo. Meritorious points, 915.

"Mary" exhibition number 165), C. W. Wadsworth, Geneseo. Meritorious points, 878.

Third premium, "Amena" (exhibition number 162), C. W. Wadsworth, Geneseo. Meritorious points, 930.

	POINTS.	HEIFERS, TWO YEARS OLD.						HEIFERS, ONE YEAR OLD.					HEIFER CALVES.					
		Exhibition No. 184.	Exhibition No. 26.	Exhibition No. 198.	Exhibition No. 166½.	Exhibition No. 15.	Exhibition No. 14.	Exhibition No. 199.	Exhibition No. 27.	Exhibition No. 185.	Exhibition No. 161.	Exhibition No. 186.	Exhibition No. 200.	Exhibition No. 28.	Exhibition No. 86.	Exhibition No. 164.	Exhibition No. 165.	Exhibition No. 162.
Head	30	30	30	30	25	25	20	30	25	25	25	25	30	30	25	30	25	30
Face	20	20	20	20	25	20	20	20	20	20	20	20	20	20	15	20	25	20
Eye	20	20	20	20	15	20	15	20	20	15	20	15	20	20	15	20	15	20
Horn	10	10	10	10	8	10	5	10	10	10	10	10	10	10	10	10	5	10
Neck	20	20	20	20	20	20	15	20	15	15	20	15	20	20	20	20	15	15
Chest	140	140	140	140	125	130	130	140	140	140	120	140	140	140	130	130	135	140
Brisket	50	50	50	50	50	40	40	50	50	50	30	50	50	50	50	50	45	45
Shoulder	40	40	40	40	40	40	40	40	40	40	35	40	40	40	40	40	35	35
Crops	80	75	80	80	75	70	75	80	70	80	70	80	80	80	75	75	75	75
Back, loins and hips	80	80	70	80	65	65	60	75	70	80	75	80	80	75	75	75	70	75
Rumps	50	50	45	50	35	40	40	50	40	40	40	50	50	45	45	45	40	45
Pelvis	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Twist	30	30	25	30	20	20	20	30	25	25	20	30	30	25	25	25	25	25
Quarters	50	50	45	50	35	45	40	50	50	50	40	50	50	45	45	45	45	45
Carcase	40	40	40	40	35	30	30	40	40	40	35	40	40	35	35	35	35	35
Flanks	30	30	25	30	25	25	20	30	30	30	25	30	30	30	30	25	30	30
Legs	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Plates	30	30	20	30	25	25	25	30	30	30	25	30	30	30	30	30	25	30
Tail	20	20	20	20	20	20	15	20	20	20	20	20	20	20	15	20	20	20
Carriage	20	20	15	20	15	15	15	20	20	20	15	20	20	20	20	20	15	20
Quality	150	140	140	150	100	125	80	140	130	130	120	150	150	140	130	120	120	130
Coat	20	20	20	20	15	15	10	20	15	15	15	20	20	15	15	10	10	15
Udder	30	25	20	20	20	15	15	30	30	30	15	30	30	30	30	30	30	30
	1,000	980	935	990	833	855	770	985	930	945	830	985	1,000	960	915	915	878	930

Short Horn Herd.

Best herd of Short Horn cattle; M. H. Cochrane, Compton, Quebec. Large gold medal.

Short Horn Bull, "Baron Booth, of Lancaster;"

Bred by G. R. Barclay, Scotland; sire Baron Booth (21212); dam Mary of Lancaster, by Lord Raglan (13244).

Cow, "Rosedale;"

Bred by Lady Pigot, England; sire Valasco (15443); dam Rosey, by Master Belleville (11795).

Cow, "Maid of Atha;"

Bred by William Miller, Canada; sire Prior 7155; dam Liza Logan, by imported Captain (11240).

Cow, "Sanspareil 8th;"

Bred by F. W. Stone, Canada; sire 12th Duke of Oxford 2315; dam Sanspareil, by Gauntlet (10260).

Heifer, "Miss Margaret 3d;"

Bred by F. W. Stone; sire 12th Duke of Northumberland 4744; dam Miss Margaret, by (imp.) John O'Gaunt, 2d (13089).

Heifer, "Wharfdale Rose;"

Bred by Captain Gunter, England; sire 3d Duke of Wharfdale (21619); dam Oxford Rose, by 6th Duke of Oxford (12675.)

Short Horn Bulls.

First prize bull, 3 years old and upwards, Charles K. Ward, Le Roy, N. Y., "Monarch;" bred by James O. Sheldon; sire Oxford Lad 4220; dam Midge, by Grand Master (12968)..... $20

Second, Walcott & Campbell, New York Mills, N. Y., "Weehawken;" bred by James O. Sheldon; sire Oxford Lad 4220; dam Vara, by Duke of Airdrie (12730)..... 15

Third prize bull, 2 years old, J. Emery Brown, Churchville, N. Y., "Horatio;" bred by Aaron Barber; sire Prince of Wales 5100 (18630); dam Neatness, by Gen. Butler 1st, 1589..... 5

First prize bull, 1 year old, M. H. Cochrane, Compton, Quebec, "Baron Booth of Lancaster;" bred by G. R. Barclay, Esq., Kevil, Scotland; sire Baron Booth (21212); dam Mary of Lancaster, by Lord Raglan (13244)..... 15

First prize bull calf, C. K. Ward, Le Roy, N. Y., "Baron of Geneva;" bred by James O. Sheldon; sire 2d Duke of Geneva 5562; dam Constance 2d, by Duke of Airdrie (12730)..... 10

Short Horn Cows.

First prize cow, 3 years old and upwards, M. H. Cochrane, Compton, Quebec, "Rosedale;" bred by Lady Pigot, England; sire Valasco (15443); dam Rosey, by Master Belleville (11795)..... 20

Second, M. H. Cochrane, Compton, Quebec, "Maid of Atha;" bred by William Miller, Pickering, C. W.; sire Prior 7155; dam Liza Logan, by (imp.) Captain (11240)..... 15

Third, M. H. Cochrane, Compton, Quebec, "Sansparcil 8th;" bred by F. W. Stone, Guelph, C. W.; sire 12th Duke of Oxford 2315; dam Sansparcil, by Gauntlet (10260) $5

First prize heifer, 2 years old, Ezra Cornell, Ithaca, "Lucia;" bred by exhibitor; sire 3d Lord Oxford (22200); dam Lucinda, by Young Renick 4524. 20

Second, M. H. Cochrane, Compton, "Miss Margaret 3d;" bred by F. W. Stone; sire 12th Duke of Northumberland 4744; dam Miss Margaret, by (imp.) John O'Gaunt 2d (13089) 15

Third, Walcott & Campbell, New York Mills, N. Y., "Hope;" bred by exhibitors; sire Weehawken 5260; dam Lady Newham 2d, by Belmont 2533 5

First prize heifer 1 year old, E. Cornell, Ithaca, N. Y., "Lucy Curd;" bred by exhibitor; sire Kirkleavington 5860; dam Lucy Ann, by Cunningham (12671) 15

Second, M. H. Cochrane, Compton, "Wharfdale Rose;" bred by Capt. Gunter, England; sire 3d Duke of Wharfdale (21619); dam Oxford Rose, by 6th Duke of Oxford (12765) 10

Third, M. H. Cochrane, Compton, "Nannie Williams 10th;" bred by Jeremiah Duncan, Paris, Ky.; sire Duke of Airdrie 2743; dam Nannie Williams 3d, by Colin Campbell 3763 5

First prize heifer calf, E. Cornell, Ithaca, N. Y., "Fidget 8th;" bred by exhibitor; sire St. Valentine 4348½; dam Fidget 6th, by 4th Duke of Oxford (11387) 10

Second, Walcott & Campbell, "Indian Queen;" bred by exhibitors; sire Weehawken 5260; dam May Queen, by St. Nicholas 4347 5

Third, Craig W. Wadsworth, Geneseo, N. Y., "Amena;" bred by exhibitor; sire Reynolds 6115; dam Agnes, by Macaroni 5919* .....

LEWIS G. MORRIS, Fordham, N. Y.,
THOMAS BELL, Eatontown, N. J.,
Committee.

* So reported by the judges. The Society offers but two premiums for calves.

DEVON COW, "HELENA" 16th.

Bred by C. S. WAINWRIGHT. Property of WALTER COLE, Batavia. Winner of the second prize in the Cow class at the New York State Fair at Rochester, in 1868.

	POINTS.	POINTS OF NORTH DEVONS.															
		BULLS.				COWS.								HEIFERS.			
		"Prince of Wales."	"Queen Anne's Huron."*	"Helena's Huron."	"Helena's Huron 2d."	"Nemophila."	"Nonpareil."	"Belle 3d."	"Helena 16th."	"Helena 29th."	"Lovely 18th."	"Helena 31st."	"Helena 32d."	"Edith."	"Primrose."	"Lady Elgin," 569	"Norwiga."
Head	40	32	35	25	20	30	30	35	30	30	35	30	30	35	40	30	30
Nose	40	30	25	20	22	30	20	35	30	35	40	30	30	40	40	25	30
Eye	40	35	35	30	28	30	30	35	35	35	33	39	30	40	40	35	35
Ear	20	16	20	15	16	18	15	20	18	17	18	16	16	16	20	15	18
Horns	20	16	15	5	5	20	16	20	20	20	20	20	20	16	17	19	16
Neck	20	20	16	14	15	18	16	17	20	18	17	18	17	15	18	17	14
Chest	140	140	130	85	90	135	125	135	132	138	126	130	120	130	140	120	122
Brisket	40	30	30	20	35	35	30	35	35	35	35	35	30	30	38	25	28
Shoulder	40	38	35	32	35	40	35	38	38	38	33	38	35	35	38	35	35
Crops	30	25	28	20	22	28	28	30	28	25	27	25	23	26	30	24	28
Back, loins and hips	99	70	90	45	60	90	75	60	85	75	80	75	60	80	85	70	78
Rumps	50	35	45	35	40	45	35	40	40	40	40	36	36	38	45	34	36
Pelvis	20	18	20	15	15	20	17	20	20	20	20	17	17	17	17	15	17
Twist	30	30	25	20	25	30	20	30	30	28	28	28	26	22	29	17	28
Quarters	60	45	50	45	48	50	40	50	50	45	40	45	40	45	55	40	55
Flanks	30	26	30	20	20	30	20	25	28	28	25	26	24	24	28	20	28
Legs	50	42	45	35	40	50	45	50	50	48	48	45	40	45	50	40	40
Carcase	20	15	19	12	12	20	14	17	19	19	19	18	16	18	20	14	18
Tail	10	7	7	5	5	8	6	9	7	9	9	8	9	8	10	8	6
Color	10	10	10	10	8	10	10	10	10	8	10	10	10	10	10	10	10
Hair	10	8	8	8	6	10	7	8	8	7	6	6	8	9	8	8	7
Udder	10	....	....	....	....	8	8	8	10	9	9	9	9	8	8	7	6
Carriage	30	26	30	30	25	30	25	30	28	30	30	28	27	25	30	25	30
Quality	150	135	140	135	120	130	140	130	120	130	135	128	130	125	150	125	145
	1,000	849	888	681	712	915	807	887	891	887	888	851	803	857	966	778	860

* Took prize 1867.

No. 2. DEVONS—DEVON HERD.

Best herd of Devon cattle, Joseph Hilton, New Scotland, Albany county, N. Y., Large Gold Medal.

Bull, "Prince of Wales;"

Imported by R. W. Cameron, Clifton, Staten Island; bred by Her Majesty the Queen of England; sire Prince Alfred; dam Peony; grand sire Saracen; grand dam Crocus.

Heifer, "Primrose;"

Bred by exhibitor; sire Sachem (554); dam Wild Rose, by Empire (424).

Heifer, "Edith 2d;"

Bred by exhibitor; sire Sachem (554); dam Edith (155); bred by the Earl of Leicester, and imported by L. G. Morris.

Heifer, "Wild Rose;"

Bred by exhibitor; sire Sachem (554); dam Moss Rose 2d, by Empire (424).

Heifer Calf, "Belle 3d;"

Bred by exhibitor; sire Napoleon; dam Belle 2d; grand dam Belle, by (imp.) Albert (2.)

Heifer Calf, "Nonpareil 5th;"

Bred by exhibitor; sire Napoleon; dam Nonpareil 3d; grand dam Empire's Nonpareil.

DEVON BULLS.

First prize bull, 2 years old and upwards, Joseph Hilton, New Scotland, N. Y., "Prince of Wales;" bred by Her Majesty the Queen of England; imp. by R. W. Cameron, Clifton, Staten Island; sire Prince Alfred; dam Peony; grand sire Saracen; g. d. Crocus..... $20

Third prize bull, 2 years old, Walter Cole, Batavia, N. Y., "Helena's Huron," 237; bred by exhibitor; sire Huron (652) 604; dam Helena 16th, by Omar Pasha (513)..... 5

Second prize bull, 1 year old, Walter Cole, Batavia, N. Y., "Helena's Huron 2d;" bred by exhibitor; sire Queen Anne's Huron; dam Lady Elgin, by Comet (162)..... 10

First prize bull calf, Walter Cole, "Cole's Hiawatha;" bred by exhibitor; sire Queen Anne's Huron 320; dam Helena 17th (518), by Hiawatha (432)..... 10

Special.

The committee recommended the certificate of the Society to Walter Cole, Batavia, N. Y., for his bull "Queen Anne's Huron," a very superior animal; he having taken the first premium previously, thereby excluded from competition.

DEVON COWS.

First prize cow, 3 years old and upwards, Walter Cole, Batavia, N. Y., "Nemophila;" bred by C. S. Wainwright, Rhinebeck, N. Y.; sire Omar Pasha (513); dam Norina (1521), by May Boy (71)..... $20

Second, Walter Cole, Batavia, N. Y., "Helena 16th," 148; bred by C. S. Wainwright; sire Omar Pasha (513); dam Helena 3d (776), by May Boy (71) 15

Third, Walter Cole, N. Y.; "Lovely 18th;" bred by Ambrose Stevens, Batavia; sire young Exeter (765); dam Lovely 3d (857), by Washington..... 5

DEVON BULL, "QUEEN ANNE'S HURON."

Bred by EDWARD G. FAILE. Property of WALTER COLE, Batavia. Winner of the first prize, in the class of aged Bulls, at the New York State Fair at Buffalo, 1867, and certificate at the Fair at Rochester, 1868.

First prize heifer, 2 years old, Joseph Hilton, New Scotland, N. Y., "Primrose;" bred by exhibitor; sire Sachem (554); dam Wild Rose by Empire (424) $20

Second, Walter Cole, "Norwiga;" bred by C. S. Wainwright; sire Comet (162); dam Norina (1521), by May Boy (71)..... 15

Third, Joseph Hilton, "Edith 2d;" bred by exhibitor; sire Sachem (554); dam Edith (155)..... 5

First prize heifer, 1 year old, Walter Cole, "Wand 2d" (737); bred by exhibitor; sire Queen Anne's Huron 320; dam Lovely 18th, 593, by Young Exeter (765)..... 15

Second, Joseph Hilton, "Wild Rose;" bred by exhibitor; sire Sachem (554); dam Moss Rose 2d, by Empire (424)..... 10

Third, Walter Cole, "Cole's Helena," 429; bred by exhibitor; sire Queen Anne's Huron 320; dam Helena 17th, 518, by Hiawatha (432)..... 5

First prize heifer calf, Joseph Hilton, "Belle 3d;" bred by exhibitor; sire Napoleon; dam Belle 2d; g. dam Belle by (imp.) Albert (No. 2)..... 10

Second, Walter Cole, "Cole's Helena 2d;" bred by exhibitor; sire Queen Anne's Huron 320; dam Lady Elgin, by Comet (162)..... 5

Third, Joseph Hilton, "Nonpareil 5th;" bred by exhibitor; sire Napoleon; dam Nonpareil 3d; g. dam Empire's Nonpareil.*

No. 3. Herefords—Hereford Herd.

Best herd of Hereford cattle, M. H. Cochrane, Compton, Quebec. Large Gold Medal.

Hereford Bull, "Compton Lad;"

Bred by John L. Gibb, Canada; sire Guelph (2023); dam Venus, by (imp.) Sailor (2200).

Cow, "Hebe 2d;"

Bred by F. W. Stone, Canada; sire (imp.) Patriot (2150); dam Hebe (imp.), by Carlisle (923).

Cow, "Necklace;"

Bred by F. W. Stone, Canada; sire (imp.) Patriot (2150); dam Nelly (imp.), by Carlisle (923.)

Heifer, "Necklace 3d;"

Bred by M. H. Cochrane; sire (imp.) Sailor (2200); dam Necklace, by Patriot (2150).

Heifer, "Hebe 4th;"

Bred by M. H. Cochrane; sire (imp.) Sailor (2200); dam Hebe 2d, by (imp.) Patriot (2150).

Heifer, "Necklace 4th;"

Bred by M. H. Cochrane; sire Canadian Chief (2441); dam Necklace, by (imp.) Patriot (2150).

Hereford Bulls.

First prize bull, 2 years old, M. H. Cochrane, Compton, Quebec, "Compton Lad;" bred by John L. Gibb; sire Guelph (2023); dam Venus, by (imp.) Sailor (2200)..... $20

Hereford Cows.

First prize cow, 3 years old and upwards, M. H. Cochrane, "Hebe 2d;" bred by F. W. Stone, Canada; sire (imp.) Patriot (2150); dam Hebe (imp.) by Carlisle (923)..... 20

* So reported by the judges. The Society offers but two premiums for calves.

First prize heifer, 2 years old, M. H. Cochrane, "Necklace 3d;" bred by M. H. Cochrane; sire (imp.) Sailor (2200); dam Necklace, by Patriot (2150).... $20

First prize heifer, 1 year old, M. H. Cochrane, "Necklace 4th;" bred by exhibitor; sire Canadian Chief (2441); dam Necklace, by (imp.) Patriot (2150), 15

The committee of judges on Devons would report that they have made their examination of all the animals in the class from two years old upwards by the scale of points. The quality of the stock shown is remarkably good, and they note with pleasure that some of the calves and yearlings are animals of excellent promise, showing a continued interest in the proper breeding of this valuable variety of cattle.

The herd exhibited by Mr. Walter Cole, of Batavia, having been awarded the herd prize at Buffalo last year, was not brought into the ring in competition for that premium; but as it comprises a number of very superior animals, we recommend that he be awarded the certificate of the Society.

The herd of Herefords exhibited by M. H. Cochrane, Compton, Quebec, were all animals of very superior quality. The bull "Compton Lad" we consider the best of his class ever shown in this State.

Of Galloways, two full bred bulls and several grades, bred from the ordinary country stock were exhibited by L. P. Gillett, Youngstown, N. Y. The exhibitor claimed for them excellent milk and beef qualities, which, of course, it is very desirable to combine. The grades were all strongly marked by the general characteristics and outline of the sire. Your committee do not feel qualified to state anything, or to recommend anything, in regard to this breed of cattle.

We would call the attention of the Executive Committee to the misunderstanding generally existing in regard to the award of premiums to animals which have previously taken prizes, and would suggest whether it would not be better both for the interests of breeders and of the Society, to withdraw all restrictions from the competition of animals in their respective classes.

SAMUEL FAILE, White Plains, N. Y.,
B. H. ANDREWS, Waterbury, Conn.,
Committee.

No. 4. AYRSHIRES.—AYRSHIRE HERD.

Best herd of Ayrshire cattle, Walcott & Campbell, New York Mills, New York. Large Gold Medal.

Bull, "Ivanhoe;"

Bred by exhibitors; sire Tarbolton (372); dam Tibbie (291), by Blackthorn.

Cow, "Handsome Nell;"

Bred by William Kirkwood, Scotland; sire Georgia; dam Tibbie.

Cow, "Nannie;"

Bred by Campbell & Co.; sire Rob Roy; dam Handsome Nell, by Georgia.

Heifer, "Jessie;"

Bred by exhibitors; sire Baldy; dam Bonny Jean, by Hornbook; g. d. Handsome Nell.

Heifer, "Peeress;"

Bred by exhibitors; sire Tarbolton; dam Handsome Nell, by Georgia.

Heifer, "Afton;"

Bred by exhibitors; sire Baldy; dam Handsome Nell.

AYRSHIRE BULLS.

First prize bull, 3 years old and upwards, C. C. Holton, Rochester, "Stentor;" bred by C. W. Brownell, Vt.; dam Geraldine, by Sir Colin..... $20

First prize bull, 1 year old, Walcott & Campbell, New York Mills, "Ivanhoe;" bred by exhibitors; sire Tarbolton (372); dam Tibbie (991), by Blackthorn 15

Second, Walcott & Campbell, "Kyle;" bred by exhibitors; sire Tarbolton (372); dam Gem, by Hornbook 149 10

First prize bull calf, Wolcott & Campbell, "Robbie;" bred by exhibitors; sire Baldy; dam Bonnie Jean, by Hornbook..... 10

Second, Walcott & Campbell, "Sir Archy;" bred by exhibitors; sire Tarbolton; dam Highland Mary, by Kilburn 5

AYRSHIRE COWS.

First prize cow, three years old and upwards, Walcott & Campbell, "Nannie;" bred by Campbell & Co.; sire Rob Roy; dam Handsome Nell, by Georgia, 20

Second, Walcott & Campbell, "Handsome Nell;" bred by William Kirkwood, Scotland; sire Georgia; dam Tibbie..... 15

First prize heifer, 2 years old, Walcott & Campbell, "Jessie;" bred by exhibitors; sire Baldy; dam Bonnie Jean, by Hornbook 20

Second, Walcott & Campbell, "Peeress;" bred by exhibitors; sire Tarbolton; dam Handsome Nell, by Georgia..... 15

First prize heifer, 1 year old, Walcott & Campbell, "Afton;" bred by exhibitors, sire Baldy; dam Handsome Nell..... 15

Second, Walcott & Campbell, "Treasure;" bred by exhibitors; sire Baldy dam Highland Mary, by Kilburn 10

First prize heifer calf, Walcott & Campbell, "Peggie;" bred by exhibitors; sire Tarbolton; dam White Rose, by Baldy..... 10

NO. 5. JERSEYS.—JERSEY HERD.

Best herd of Jerseys, W. B. Dinsmore, Staatsburgh, Dutchess county, New York. Large Gold Medal.

Bull "Jerry;"

Imported by exhibitor.

Cow, "Bettie;"

Imported by exhibitor.

Cow, "Biddy 2d;"

Bred by John Giles, Connecticut; sire General (imp.); dam Lilly Dale; g. d. Biddy (imp.).

Heifer, "Poody;"

Bred by exhibitor; sire Pat (imp.); dam Alice; g. d. Jennie 2d.

Heifer, "Diana 3d;"

Bred by exhibitor; sire Jerry (imp.); dam Diana; g. d. Sue 2d.

Heifer, "Delia 2d;"

Bred by exhibitor; sire Jerry; dam Delia; g. d. Daisy 2d.

Jersey Bulls.

First prize bull, 3 years old and upwards, Samuel Campbell, New York Mills, N. Y., "Champion;" bred by R. H. Pomeroy, N. Y.; sire Ivanhoe; dam Lady Jersey; g. d. (imp.) Fairy $20
Second, J. D. Wing, Washington, Dutchess county, N. Y., "Saratoga;" bred by Adin Thayer, Jr.; sired, in Jersey, by first prize bull Paris Exhibition; dam imported by Mr. Thayer from stock of Mr. Hubert, of St. Owens 15
Third, W. B. Dinsmore, Staatsburgh, N. Y., "Jerry;" imported by exhibitor, 5
First prize bull calf, W. B. Dinsmore, "Drummer;" bred by exhibitor; sire (imp.) Jerry; dam (imp.) Daisy 10
Second, Thomas Gould, Aurora, N. Y., "Admiral 4th;" bred by J. S. Mitchell; sire Admiral; dam Lady Washington, by bull imported by Mr. Davids, of New Rochelle 5

Jersey Cows.

First prize cow, 3 years old and upwards, J. D. Wing, Washington, N. Y., "Fancy;" bred by John Haven, New York; sire Frank; dam Flora 2d, by General 20
Second, W. B. Dinsmore, "Bettie"; imported by exhibitor 15
Third, W. B. Dinsmore, "Biddy 2d;" bred by exhibitor; sire (imp.) General; dam Lilly Dale; g. d. Biddy, (imp.) 5
First prize heifer, 2 years old, J. D. Wing, "Flora 3d;" bred by T. L. Harison, Morley, N. Y.; sire Frank; dam Flora 2d, by General 20
Second, W. B. Dinsmore, "Poody;" bred by exhibitor; sire Pat, (imp.); dam Alice; g. d. Jennie 2d 15
Third, Samuel Campbell, "Rose;" bred by John Giles, Conn.; sire Sir Johnny; dam Bell; g. d. Diana 4th 5
First prize heifer, 1 year old, W. B. Dinsmore, "Diana 3d;" bred by exhibitor; sire Jerry; dam Diana; g. d. Sue 2d 15
Second, W. B. Dinsmore, "Delia 2d;" bred by exhibitor; sire Jerry; dam Delia; g. d. Daisy 2d 10
Third, W. B. Dinsmore, "Laura;" bred by exhibitor; sire Jerry; dam Lily 2d; g. d. Lily, (imp.) 5
First prize heifer calf, W. B. Dinsmore, "Frankie 2d;" bred by exhibitor; sire Jerry; dam Frankie, (imp.) 10
Second, W. B. Dinsmore, "Hattie 3d;" bred by exhibitor; sire Jerry;" dam Hattie, (imp.) 5

OTIS DILLINGHAM, Granville, N. Y.,
BENJ. L. SWAN, Jr., Oyster Bay, N. Y.,
Committee.

No. 6. Milch Cows and Grades.

First prize milch cow, John Lynch, West Brighton, Monroe county, N. Y.... $20
First prize grade Short Horn cow, O. Howland, Auburn 15
Second, J. Emery Brown, Churchville, N. Y 10
Third, J. Emery Brown, N. Y 5
First prize grade Devon cow or heifer, Joseph Kurtz, Perinton, N. Y 15
Third, John H. Bell, West Brighton, N. Y 5

No. 7. Oxen, Steers and Fat Cattle.

First prize yoke of working oxen, over 5 years old, B. Diver, West Brighton, N.Y	$15
Second, J. Robertson, East Henrietta, N. Y.	10
Third, G. W. Wilcox, Spencerport, N. Y.	5
First prize yoke of steers, 3 years old, G. W. Wilcox	15
First prize yoke of steers, 2 years old, N. Davis, Chili, N. Y.	10
Best trained yoke of steers, by boy under sixteen, O. P. Brigham, Ogden, N. Y	10
First prize fat ox, over 4 years old, Wm. Jackson, Fosterville, N. Y.	15
Second, Calvin Diver, West Brighton, N. Y.	10
Third, Wm. Jackson	5
First prize fat steer, 3 years old or under, C. W. Wadsworth, Geneseo, N. Y.	15
Second, Benjamin Fellows, Chili, N. Y.	10
Third, G. W. Wilcox	5
Third prize fat heifer, 3 years old, J. H. Bell, West Brighton, N. Y.	5

BERRY LONG, Cambridge, N. Y.,
JOHN A. QUACKENBUSH,
Committee.

CLASS II—HORSES.

No. 8. Breeding and Growing Stock.

Special Premium offered by a Member of the Society.

A special premium for the best stallion for general purposes, over 4 years old, and not less than 15 hands 3 inches high, Rufus P. White, Adams, N. Y., "Continental"	$200
First prize stallion for general purposes, 4 years old or over, Thomas L. Ellis, St. Catharines, C. W., "Grantham Chief"	50
Second, D. B. Haight, Dover Plains, N. Y., "Goldsmith"	30
Third, M. R., Ballintine, Chili, N. Y., "Ironsides"	15
First prize draught stallion, 4 years old or over, Reuben Rowley, Fillmore, N. Y., "Young Tom Thumb"	20
Second, E. D. Vaughan, Rochester, "Cheshire Champion"	15
Third, Garret Denise, Macedon Center N. Y.	5
First prize stallion for getting roadsters, E. W. Taylor, Elmira, N. Y., "Lafayette"	20
Second, Ira H. Coleman, Sheldrake, N. Y.	15
Third, A. H. Van Ness, Bushnell's Basin, N. Y., "Sabeck"	5
First prize stallion, 3 years old, Isaac S. Wells, Egypt, N. Y., "Monroe Morgan"	15
Second, E. W. Thomas, Rose, N. Y.	10
Third, James Reed, Lockport, N. Y.	5
First prize stallion, 2 years old, L. G. Morris, Mt. Fordham, N. Y., "Orion"	15
Second, P. Rowney, Yates, N. Y.	10
Third, D. P. Newell, Parma Centre, N. Y., "Blackhawk Emigrant"	5
First prize stallion, 1 year old, L. G. Morris, "Arcturus"	10
Second, G. D. Williams & Brother, Rochester	8
Third, John H. Carpenter, Rochester	4
First prize brood mare, with foal at her foot, James Kilham, Turin, N. Y.	20
Second, Henry Speaker, Henrietta, N. Y.	15
First prize filly, 3 years old, George Hammil, Rome, N. Y	15

Second, Robert Bell, West Brighton	$10
Third, James Read, Lockport	5
First prize filly, 2 years old, L. G. Morris, "Juno"	15
Second, L. G. Morris, "Vivandiere"	10
Third, Robert Bell, West Brighton, N. Y.	5

The committee, in making their report, beg to state that they have experienced embarrassment in making the several awards within the limits fixed by the regulations of the Society, for the reason that so many animals were found in the several classes of high merit and competing so closely.

Therefore the committee desire to state this fact, and while they cannot mention by name and in detail all demanding favorable notice, feel constrained to the pleasure of speaking of the bay stallion "Marshall Anderson," thorough-bred, about sixteen hands, six years, entered by Lewis G. Morris, owner, Fordham, N. Y., for exhibition only. We regard him as a very fine animal, and well worthy the patronage of the public. As a thorough-bred, we consider him decidedly the best horse shown on the ground in that class.

Your judges have examined with much care the thorough-bred stallion "Zollicoffer," entered by Mr. Thomas L. Harison, of Morley, St. Lawrence county, N. Y. He is an animal of fine size, of high carriage, and combines with strong bone and powerful muscle a light and graceful movement, his knee action being particularly good for a thorough-bred. Experience having shown that thorough blood is of prime importance in producing and maintaining a fine class of road horses, we consider this stallion one of the finest horses exhibited at this fair.

The chestnut stallion "El Dorado," entered (for exhibition only) by D. B. Haight, Dover Plains, N. Y., and owned by Thomas Hall Faile, of New York city, we deem worthy of this notice. He is fifteen and a half hands, eight years old, of great beauty, fine action, and very speedy, and as a roadster one of the finest horses on the ground. Had he been entered for a cash premium, he would have been a strong competitor with the best for all purposes.

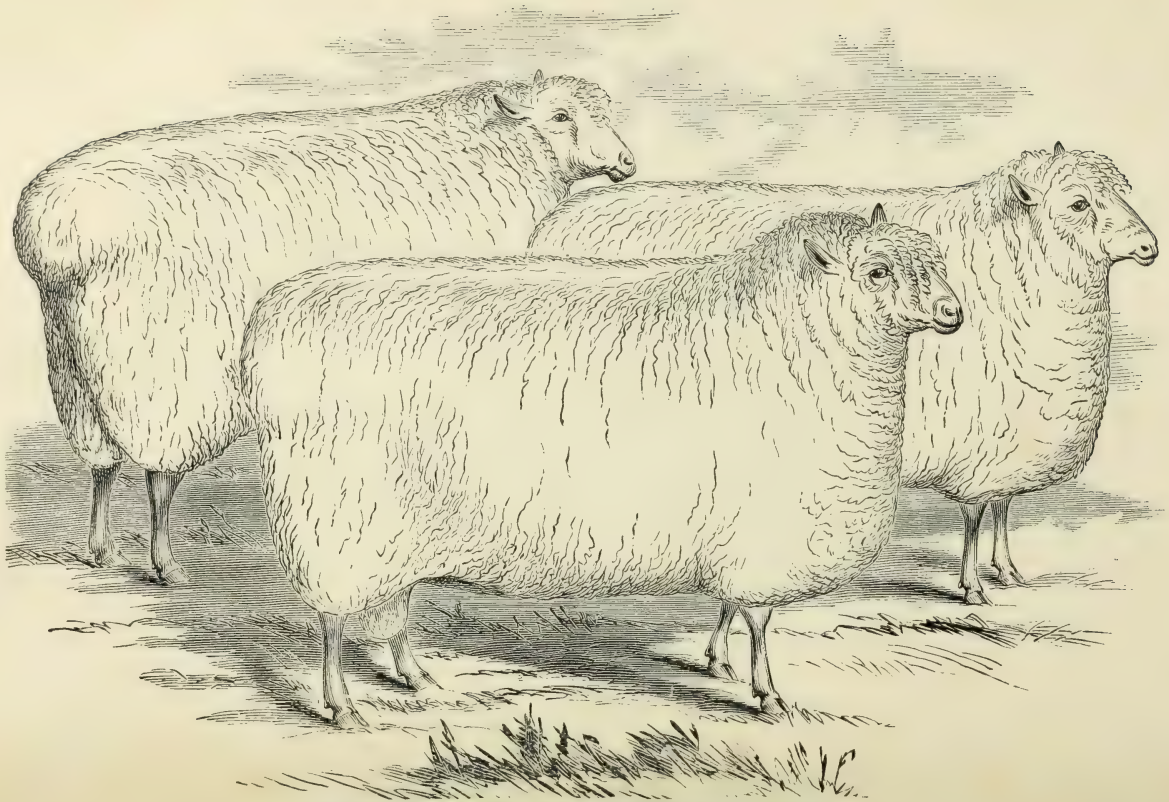
J. M. and J. W. Williams, of ———, brought on the ground on the morning of the second day, one three year old black stallion, sired by Royal George, being too late for entry. We take pleasure in reporting him as a very worthy colt, good size and action, and in every way a fine average, a colt of great promise.

We cannot forego the pleasure of favorably mentioning the chestnut colt (stallion) less than four years old, entered by Miss H. J. Chesebro, an orphan girl, thirteen years old, residing in Alden, Erie county, N. Y. This colt was entered in the class for all purposes. Had he been entered in a younger class, he would have compared favorably with the best. He is a very fine colt, but being entered in the class for all purposes, his competitors were horses of all ages, degrees of speed and growth. We were, with regret, compelled to limit him to this notice only.

"Goldsmith."—Had this stallion (owned by D. B. Haight, of Dover Plains), come up to the standard of measurement, he would have compared favorably with the winner of the prize for general purposes.

"George Buchanan."—This stallion, the property of L. S. Fulton, Rochester, was not brought upon the ground in time. If he had been, the committee would have given him the premium as the best draught stallion.

CHARLES W. BATHGATE, Fordham, N. Y.,
JOHN McGRAW, Ithaca, N. Y.,
Committee.



GROUP OF IMPORTED COTSWOLD SHEEP.

The property of M. H. Cochrane, Compton, Quebec, Canada.

No. 9. Harness and Saddle Horses.

First prize pair of carriage horses, over fifteen and under sixteen hands, M. F. Reynolds, Rochester $15
Second, L. W. Treat, Auburn, N. Y. 10
First prize pair of driving or road horses, not under fourteen and a half hands, George I. Wheeler, Rome, N. Y. 15
Second, Robert Bell, West Brighton, N. Y. 10
Third, L. H. Goodrich, Lockport, N. Y. 5
First prize pair of draught or farm horses, Levi S. Fulton, Rochester 15
Second, Dodge and Stevenson, Mfg. Co., Auburn 10
First prize single harness horse, A. H. Van Ness, Bushnell's Basin, N. Y. 10
Second, James Read, Lockport, N. Y. 8
Third, H. A. Ellis, West Brighton, N. Y. 4
First prize single driving horse, G. Hossington, Ellisburgh, N. Y. 10
Second, D. B. Hoyt, Rochester 8
Third, Francis Leyden, Rochester 4
Second prize saddle horse, C. Johnston, Rochester 8

No. 10. Mules and Jacks.

First prize jack, J. G. Whitney, Conneaut, Ohio 15

A. B. RAYMOND, New York,
J. ASHWORTH, Belmont, Ottawa,
J. P. ADRIANCE, Poughkeepsie,
Committee.

CLASS III.—SHEEP, SWINE AND POULTRY.

No. 11. Fat Sheep, &c.

First prize fat sheep (Southdown), over 2 years, Ezra Cornell, Ithaca $5

No. 12.* Long-wooled Sheep.

Leicesters.

First prize ram, under 2 years, M. H. Cochrane, Compton, Quebec 10
Second, Jurian Winne, Bethlehem, N. Y. 8
Third, Jurian Winne, Bethlehem, N. Y. 4
First prize pen 5 ewes, over 2 years, M. H. Cochrane 10
Second, Walcott & Campbell, New York Mills, N. Y. 8
First prize pen 5 ewes, under 2 years, M. H. Cochrane, Compton 10

Cotswolds.

First prize ram, over 2 years, M. H. Cochrane, Compton, Quebec 10
First prize ram under 2 years, M. H. Cochrane 10
First prize pen 5 ewes, over 2 years, M. H. Cochrane 10
First prize pen 5 ewes, under 2 years, M. H. Cochrane 10

Lincolns.

First prize ram, over 2 years, Walcott & Campbell, New York Mills, N. Y. 10
Second, M. H Cochrane, Compton, Quebec 8
First prize pen 5 ewes, over 2 years, Walcott & Campbell 10
First prize pen 5 ewes under 2 years, Walcott & Campbell 10

* It is to be noted that several of the best breeders of long-wooled sheep in this State were prevented exhibiting by having sheared their sheep in April, not knowing that the time of shearing had been changed to May 1.

No. 13. MIDDLE-WOOLED SHEEP.

Second prize Southdown ram, over 2 years, John Lynch, West Brighton, N. Y.	$8
Second prize pen 3 Southdown ram lambs, John Lynch, West Brighton	3
First prize pen 5 Southdown ewes over 2 years, Ezra Cornell, Ithaca, N. Y...	10
Second, John Lynch.....	8
Second prize Hampshire down ram, 2 years old, Cornelius Parsons, Riga, N. Y.	5
First prize 5 Hampshire ewes, Cornelius Parsons	10

Honorable mention should be made of a nice pen of Hampshire down ewe lambs exhibited by Cornelius Parsons, of Riga, N. Y., for which no premium was offered.

A fine collection of Oxford downs was shown by M. H. Cochrane.

BYRON LOOMIS, Suffield, Conn.,
ABRM. TABOR, Aurora, N. Y.,
Committee.

No. 14. FINE-WOOLED SHEEP.

A—Sheep of Merino Breed, bred for fineness of wool.

First prize ram, over 2 years old, Wm. Chamberlain, Red Hook, N. Y.....	$10
Second, Wm. Chamberlain.....	8
First prize ram, under 2 years, Carl Heyne, Red Hook.....	10
First prize pen 3 ram lambs, Wm. Chamberlain.....	5
First prize pen 5 ewes, 2 years old, Wm. Chamberlain.....	10
Second, Wm. Chamberlain.....	8
First prize pen 5 ewes, 1 year old, Wm. Chamberlain	10
First prize pen 3 ewe lambs, Wm. Chamberlain.....	5

B—Sheep of Merino Breed, bred for weight of fleece.

First prize ram, over 2 years old, L. J. Wright & Co., Milo Center, N. Y...	10
Second, Bronson & Marrimer, East Bloomfield, N. Y.....	8
First prize ram, under 2 years, Wm. Chamberlain, Red Hook, N. Y.....	10
First prize pen 3 ram lambs, S. B. Lusk, Batavia, N. Y.....	5
Second, Pierce and Fellows, Spencerport, N. Y.....	3
First prize pen 5 ewes, 2 years old, Bronson & Marrimer.....	10
Second, Wm. Chamberlain.....	8
First prize pen 5 ewes, 1 year old, Bronson & Marrimer	10
Second, Wm. Chamberlain.....	8
First prize pen 3 ewe lambs, Bronson & Marrimer	5
Second, S. B. Lusk.....	3

Grade Merinos, or Sheep of Mixed Breed, bred chiefly for wool.

First prize pen 5 ewes, 2 years old, Wm. Chamberlain.....	8
Second, Robert Bell, West Brighton.....	4
First prize pen 5 ewes, one year old, William Chamberlain	8
Second, Robert Bell	4
First prize pen 3 ewe lambs, William Chamberlain.....	5
Second, Robert Bell	3

Your committee would recommend that hereafter there be a special class for sheep bred for broadcloth wools or Silesians, as it is a very difficult matter for the committee to make proper decisions when such sheep are entered to compete with

American Merinos. Your committee regard sheep of said class (Mr. Chamberlain's) as worthy of merit and entitled to first class premiums, if competing in a class under which they should be shown. The Society should, in our opinion, arrange for such a class.

PARSOLL H. PETERSON, Canoga, N. Y.,
O. F. MARSHALL, Wheeler,
Committee.

No. 15. Swine—Large Breed,

Which, when full grown and fattened, will weigh over 450 pounds dressed.

First prize boar, 2 years old or over, S. P. Huffstater, Watertown, N. Y	$10
First prize boar, 1 year old, S. P. Huffstater	10
Second, Clark & McLean, Henderson, N. Y	8
Third, T. T. Cavanaugh, Watertown	4
First prize boar, 6 months and less than 1 year, William H. Cobb, Rochester,	8
First prize breeding sow, 2 years old, Clark & McLean	10
First prize sow, 1 year old, Clark & McLean	10
First prize pig, over 6 months, S. P. Huffstater	8
Second, James Brodie & Son, Rural Hill	5
Third, James Brodie & Son	3
First prize lot of 5 pigs, under 10 months, Clark & McLean	8
Second, T. T. Cavanaugh	5
Third, S. P. Huffstater	3

Small Breed,

Which, when full grown and fattened, will not weigh over 450 pounds dressed.

First prize boar, 2 years old or over, Joseph Harris, Rochester	$10
First prize breeding sow, 2 years old, Robert Bell, West Brighton	10
Second, Joseph Harris	8

In making an examination for the purpose of deciding the awards above submitted, we find the entries, for various reasons not entirely full, yet in consideration of the expense and risk of transporting this class of property, there is a commendable exhibition, though not as extensive as would be desirable, and probably not equal to the show of last year.

While it is desirable that those who make the breeding of choice stock a specialty, should exhibit their stock at our fairs, it is to be regretted that so few *farmers* enter their stock for competition.

S. S. WHITMAN, Little Falls,
LEVI S. FULTON, Rochester,
Committee.

No. 16. Poultry.

First prize Gray Dorkings, N. Barnes, New Hartford, N. Y	$5
Second, G. H. Warner, New York Mills, N. Y	3
First prize White Dorkings, G. H. Warner	5
Second, N. Barnes	3
First prize Black Spanish, Timothy Herrick, Staatsburg, N. Y	5
Second, N. Barnes	3
First prize White Polands, N. Barnes	5
First prize Silver Polands, E. A. Wendell, Albany, N. Y	5

Second, N. Barnes	$3
First prize Bolton Grays, N. Barnes	5
First prize Red Game, N. Barnes	5
Second, N. Barnes	3
First prize Leghorns, John Salisbury, Jr., Nyack, N. Y.	5
Second, G. H. Warner	3
First prize African Bantams, N. Barnes	5
Second, N. Barnes	3
First prize Gold-laced Bantams, E. A. Wendell, Albany, N. Y.	5
Second, E. A. Wendell	3
First prize Silver-laced Bantams, N. Barnes	5
Second, G. H. Warner	3
First prize Cochins, N. Barnes	5
First prize Brahmas (light), G. H. Warner	5
Second, E. A. Wendell	3
First prize Brahmas (dark), N. Barnes	5
First prize Hamburghs, Thomas Gould, Aurora, N. Y.	5
Second, N. Barnes	3
First prize Houdans, G. H. Warner	5
Second, G. H. Warner	3
First prize Crevecœurs, G. H. Warner	5
Second, J. Y. Bicknell, Westmoreland, N. Y.	3
First prize La Fleche, G. H. Warner	5
Second, J. Y. Bicknell	3
First prize bronze turkeys, N. Barnes	5
Second, Robert Bell, West Brighton, N. Y.	3
First prize white turkeys, Thomas Gould	5
Second, E. A. Wendell	3
First prize Muscovy ducks, N. Barnes	5
Second, G. H. Warner	3
First prize Aylesbury ducks, N. Barnes	5
Second, G. H. Warner	3
First prize Rouen ducks. G. H. Warner	5
Second, G. H. Warner	3
First prize Cayuga ducks, N. Barnes	5
Second, J. Y. Bicknell	3
First prize Bremen geese, N. Barnes	5
Second, E. A. Wendell	3
First prize White China geese, N. Barnes	5
First prize African geese, N. Barnes	5
Second, N. Barnes	3
First prize Guinea fowls, N. Barnes	5
Second, Robert Bell	3
First prize pea fowls, E. A. Wendell	5
Second, N. Barnes	3
Best and greatest variety of pigeons, Charles W. Yaky, Rochester	5
Second, N. Barnes	3
First prize pair common rabbits, N. Barnes	3

Lop-eared or Madagascar Rabbits.—(Special List of Premiums.)

The additional amount offered was contributed by two members of the Society, who declined to exhibit in competition.

First prize self-colored buck, Thomas Gould, Aurora, N. Y.	$4
Second, Thomas Gould	3
First prize self-colored doe, Thomas Gould	4
Second, Thomas Gould	3
First prize broken color buck, Thomas Gould	4
Second, Thomas Gould	3
First prize broken color doe, Thomas Gould	4
Second, Thomas Gould	3

Among the *extra* entries, your committee would make favorable mention of a pair of wood ducks and a pair of Chinese golden pheasants, exhibited by G. H. Warner, of New York Mills, N. Y. Also, a pair of duck-winged game fowls, exhibited by J. Y. Bicknell, Westmoreland, N. Y., as worthy of mention, and a cage of turtle doves, exhibited by G. A. Widmer, of Rochester, attracted notice as desirable cage pets.

D. S. HEFFRON, Utica, N. Y.,
ABRAM VOUGHT, Pittsford, N. Y.,
Committee.

CLASS IV—IMPLEMENTS AND MACHINES.

No. 17. Articles to which Premiums were Awarded upon Trial.

Best potato digger, A. Marcellus, Shortsville, N. Y. ..... Large Bronze Medal.
Best scraper or other contrivance for moving earth without carting or shoveling (England's patent scraper, L. D. Miller for H. England) Delhi, New York ..... Large Bronze Medal.

Mr. Miller exhibited England's patent road scraper, which was worked in our presence. The pan of the scraper is locked in its place by two latches; as soon as the scraper is full the operator presses his thumb on a spring, which disengages the latches, and the load is deposited while the operator retains the handles in his hands. We think it is a decided improvement on this kind of implement, and award him the premium.

J. STANTON GOULD, *for Committee.*

Report of Special Committee on Potato Diggers.

The soil was a clayey loam intermingled with fine gravel, and was in a moist condition. The machines were tried on unripe peach-blow potatoes and on well ripened Dikemans. The yield of both was very small.

The first tried was entered by A. Marcellus, of Shortsville, N. Y. Weight 665 lbs. Price $125.

This machine consists, substantially, of a double mould board plow, which never clogged in a very difficult test. This directs the potatoes into basket wheels, which shake a considerable amount of earth from them, and then directs them into a shaker, which is worked vertically, and frees them from adhering dirt, directing them inward, forming rows, where they may be easily picked up.

The separators were clogged three times during the experiments in unripe potatoes, but did not clog in the ripe ones. The only objection to it was that a few of the potatoes were pressed into the ground by the basket wheels, and one or two of them were slightly abraded on the surface.

The next was entered by H. J. Kintz, of Greece, Monroe county, N. Y. Weight 315 lbs. Price $70. It consists of a sharp cutter, extending the whole breadth of the machine, which has a narrower semi-circular cutter upon its center. This raises the potatoes on to an adjustable sifter which transfers them to a cylinder sifter which in turn, throws them to the back of the machine. It clogged six times in the green potatoes and once in the ripe potatoes.

On comparing these machines, we find that the machine of Mr. Marcellus excels in the following respects:

1st. Separates the earth more thoroughly from the potatoes.

2d. It separates the vines best.

3d. It is less liable to clog.

4th. It concentrates the tubers more, so that they are more easily picked up.

The Kintz machine excels in the following points:

1st. In simplicity.

2d. It injured no potatoes.

3d. It is cheaper.

4th. It is lighter.

It is just to state that the injury to the potatoes spoken of in the second point, which was very trifling, arose from the small size of the potatoes which allowed them to pass through the openings of the wheel. Had they been of ordinary size, we think there would be no injury to the tubers.

In our opinion the points in which Mr. Marcellus' machine is superior are the most important, and we therefere award the premium to it.

Mr. G. W. Kintz entered the "Free and Easy." Weight 150 lbs. Price $50.

It was a new machine and did not operate successfully.

Messrs. J. P. Davidson & Co., of Rome, entered the "Iron Clad Potato Digger," but were unable to exhibit it on account of severe sickness.

JOHN STANTON GOULD,
M. R. PATRICK,

Committee.

Report of Special Committee on Ditching Machines.

Three ditching machines were entered for competition, viz: The Chicago tile ditch digging machine, invented by Judd Stevens; the Heath ditcher, invented by Edward Heath; and one presented by W. D. Strowyers, of Rochester, and invented by him.

We tested them, practically, on the field opposite to the Fair Ground at Rochester, owned by Mr. Booth.

The Chicago ditcher was first tried. It may be briefly described as resting on a triangular platform ten feet long, eighteen inches wide at the front end and nine feet at the rear end. This frame is mounted on three wheels, the two rear ones are ordinary wagon wheels three and a half feet in diameter and two inches wide. The front is a castor wheel three feet in diameter and seven and a quarter inches wide, having guards on either side which ensure its straight direction in the ditch. On this frame a secondary frame is attached, which can be elevated or depressed by means of a rack and pinion on the rear end, which is worked with a crank. The digger is attached to a secondary frame and, of course, rises or falls with it. The spades are attached to a strong iron wheel four feet in diameter. The spades extend twelve inches beyond the wheel, making the total diameter of the revolving apparatus six feet. It is very difficult to describe the varied motions of the machine without the aid of illustrative diagrams. We can only say, that by means of ingeniously

contrived cam motions, the spades assume different angles with the radii of the machine at every successive point in its revolution, so as to enter and leave the ground in the direction best calculated for the excavation. When they leave the ground they are held in a horizontal position, until the proper moment for discharge arrives, when they are rotated by means of a cam at right angles to their previous position, and discharge the earth held by them into a spout, which directs it to the ground on the outside of the ditch. Each spade is formed by two steel blades eight and a half inches long and three inches wide, having an interval of two inches between them. They are inserted into a mortise in a cast iron cross head, into which the shank of the spade is inserted. The tongue is so hung as to allow of a rotation horizontally of one hundred and eighty degrees, and is adjusted for an upper and lower attachment of the whiffletrees, fourteen inches apart, the lower one being used for the upper part of the ditch, and the upper one for the lower part. The several motions of the spades are all affected by cams, with curves suitably adapted to produce them.

A ditch was cut in our presence with this machine ninety yards long, nine inches wide and from eighteen to twenty-seven inches deep, in different parts of the ditch, in one hour. The horses became balky as the ditch increased in depth, and some time was lost in changing them for steadier ones. We did not see the machine when it started, our attention being engaged by another implement, but we think the period of intermission could not have exceeded fifteen minutes, in which case the actual working time was three-quarters of an hour. The machine was drawn by four horses, working abreast, and the labor, especially in the lower part of the ditch, seemed to be very severe.

The machine was exceedingly ingenious in its construction, and appeared to be very strong, but, in its present form, it seems to be liable to very serious objections.

The spades enter the ground deeper than they can excavate, which makes the ground soft and uneven at the bottom of the ditch. After it was finished to the requisite depth the proprietors ran the castor wheel several times along the bottom with a view to make it smooth and solid, but without a satisfactory result; the bottom was neither smooth nor solid. The depth of the ditch was very irregular. This, it is contended by the proprietors, is not the fault of the machine; that there is abundant provision in the machine for adjusting its cut to the inequalities of the ground; but, as we can only report on what we actually saw, we are bound to report that its performance in this respect was unsatisfactory.

Weight 2,400 lbs. Price $500.

The next machine examined was that offered by Edward Heath, of Fowlerville, Livingston county, New York.

It is made chiefly of wood and is very strong and durable. It is operated by four horses, who perform the work with ease to themselves, and who travel in a circle. It is connected with an anchor at the farther end of the ditch, by iron rods, to which a flexible chain is attached, by means of which the machine is drawn forward by the action of its own machinery. The capstan and bridge are also propelled forward simultaneously with the machine by the action of the same mechanical devices.

The ditch is excavated throughout its entire depth by a single stroke of a chisel, which, having reached the bottom of the ditch, moves upward with a circular sweep, and deposits its load in front of the cutting. A vibrating scraper, which removes the earth, deposits it alternately on either side of the ditch, at a sufficient distance

from the side to prevent all danger of falling back. As the chisel rises it is met by the scraper, which effectually removes the earth from it however tenacious it may be. The reciprocating motion of the chisel is caused by an ingenious arrangement of adjustable cams on the capstan wheel acting upon it through flexible chains. The depth of the ditch is regulated by a windlass, which may be operated at pleasure while the machine is in motion.

It excavated the ditch, during the trial, at the rate of thirty-nine feet in nine and a half minutes, and was worked by two men. Weight 2,500 lbs., including capstan and bridge. Price $200.

We think this machine a great practical success, and better adapted to the wants of American farmers than anything that has ever been presented at our fairs, and as such we cordially commend it to their notice. We think it superior to its competitor because it leaves the bottom of the ditch smooth, firm and even, with the original earth undisturbed. The sides are firm and uncrumbed. Its cost is less than half. Its durability is, in our judgment, equal to the other, but on this point we may possibly be mistaken. It seems to require less force to operate it. The only point in which it may be considered inferior to the other is that of portability.

The size of the ditch cut was ten inches wide at top, eight inches wide at bottom, and two and a half feet deep.

The soil upon which the experiments were tried consisted on the top, for about four inches, of a dark carbonaceous loamy soil, and for the remaining depth of a tough tenacious clay in a moist condition.

JOHN STANTON GOULD, Hudson,
M. R. PATRICK, Manlius,
Committee.

CLASS IV.—IMPLEMENTS AND MACHINES.

No. 18. IMPLEMENTS AND MACHINES TRIED ON THE SHOW GROUNDS, OR THAT DID NOT REQUIRE TRIAL TO DETERMINE THEIR VALUE.

Best hay and cattle scales, Sampson Scale Comp., New York... Large bronze medal.
Best fanning mill, J. A. Krake, Alden, N. Y..... Large bronze medal.
Best buckwheat scourer, B. H. Wakely, McLean, N. Y..... Large bronze medal.
Best smut machine, Rochester Agricultural Works, Rochester. Large bronze medal.
Best corn sheller, by horse power, B. B. Snow & Co., Auburn.. Large bronze medal.
Best corn sheller, hand power, Lewis T. Newel, Geneva, Ohio. Large bronze medal.
Best farm grain mill, H. M. Kinne, Buffalo ..... Large bronze medal.
Best cider mill, Warder, Mitchell & Co., Springfield, Ohio.... Large bronze medal.
Best root cutter, J. R. Robertson, Syracuse, N. Y..... Large bronze medal.
Best root pulper, Remington Agricultural Works, Utica, N. Y. Large bronze medal.
Best pump for farm use, Jacob Markell, Rochester, N. Y ..... Large bronze medal.
Best substitute for pump, (Patrick's stock pump), Hiram Lawton, Rochester, N. Y ..... Large bronze medal.
Best washing machine and boiler, W. B. Watkins, New York. Large bronze medal.
Best washing machine, (Doty's), J. W. McKindley, Rochester.. Large bronze medal.
Best clothes wringer (Universal), J. W. McKindley, Rochester. Large bronze medal.
Best planing machine, Frank & Co., Buffalo, N. Y..... Large bronze medal.
Best spoke machine, C. & L. Perrigo & Co., Groton, N. Y .... Large bronze medal.
Best machine for sharpening mowing and reaping machine knives, Farmer's Manufacturing Co., Auburn..... Large bronze medal.

No. 19. Tools and Hand Implements for the Farm and Garden.

Best grain cradle, J. W. McKindley, Rochester	$5
Best six manure forks, J. W. McKindley	5
Best spading forks, J. W. McKindley	5
Best six grass scythes, Pollock & Weaver, Rochester	5
Best scythe snaths, Pollock & Weaver	5
Best set draining spades, Pollock & Weaver	5
Best exhibition of edge tools, D. R. Barton & Co., Rochester	5
Best exhibition of farm and garden tools and implements, Remington Agricultural Works, Utica	10
Best exhibition of saws, Flint & Co., Rochester, N. Y	5
Second, R. Hoe & Co., New York	3
Best lot of grain measures, Pollock & Weaver	3
Best milk pan, M. F. Potter, New York	3
Best jars for preserving fruits, &c., Wilcox Fruit Jar Co., New Haven, Conn.	3
Best six butter tubs, H. P. Westcott, Seneca Falls, N. Y	5

Special Awards.

Heald, Sisco & Co., Baldwinsville, N. Y., anti-friction centrifugal pumps. High merit.

James Budd, Pittsford, N. Y., three way stop cock, Merit.

D. Doncaster, Albany, Davis' double-slat planer. Merit.

J. G. Scott, Watertown, machine for making paper cheese boxes.

J. G. Scott, paper cheese boxes.

C. T. Bush, Schoharie, N. Y., new plan for training hops. Highest merit.

Best cheese hoop (metallic), E. B. Sims, Antwerp, N. Y.

Best butter worker, J. P. Corbin & Co., Whitney's Point, N. Y.

Best milk cooler, M. F. Potter, New York.

Best cheese vat, William Ralph & Co., Utica.

Hoes.—All superior. We recommend a premium to Remington Agricultural Works, Utica; J. W. McKindley, Rochester; L. Bolles & Co., Binghamton—all having stood a severe test.

Axes.—All superior. We recommend a premium to each of the exhibitors: J. W. McKindley, Rochester; Pollock & Weaver, Rochester; D. R. Barton & Co., Rochester.

Forks.—The specimens on exhibition were submitted to severe trials, and all stood the tests. We recommend premiums to the following exhibitors: J. W. McKindley, Rochester; Pollock & Weaver, Rochester; Williamsport Manufacturing Company, Williamsport, Penn.

No. 20. Wagons, Carriages, Saddlery, and Articles of Wheelwrights' and Blacksmiths' Work.

Best top buggy, Knox & Williams, Rome, N. Y	$10
Second, S. T. Parker, Millbury, Mass	5
Best open buggy, Knox & Williams	10
Second, S. T. Parker, Millbury, Mass	5
Best business buggy, shifting top, Norman Hough, Rochester	10
Best double farm wagon, J. E. Morgan, Deerfield, N. Y	10
Second, Joseph Williams, West Henrietta, N. Y	5

Best roller for general use, Ira D. Williams, West Henrietta, N. Y $5
Second, George Wiard, East Avon, N. Y..... 3
Best hay rigging, Randall King, Kendall Corners..... 5
Second, Stephen Brownell, Irving, N. Y 3
Best carriage harness, William H. Duval, Utica, N. Y..... 5
Second, A. V. Smith, Rochester..... 3
Best buggy harness, Deubscher, Vedder & Beck, Lockport..... 5
Second, E. Kraft, Hamilton, Canada..... 3
Best farm harness, A. V. Smith, Rochester 5
Bes man's saddle, E. Kraft, Hamilton, Canada 5
Second, A. V. Smith..... 3
Best side saddle, E. Kraft..... 5
Second, A. V. Smith 3

Special.

The committee report the following articles as possessing high merit, and hereby give them their commendation: Horse collars, T. C. Lighthouse, Rochester, N. Y.; adjustable hame staple, Pratt & Letchworth, Buffalo; reversible saddles, E. Kraft, Hamilton, Canada; patent pad hook, G. D. Gillett, Meridian.

D. H. Wood, Sandusky, N. Y., carriage brace. High merit.

THURBER'S PATENT STEAM PISTON PACKING—EXHIBITED BY THEODORE THURBER, AUBURN.

The special committee, appointed to examine "Thurber's Patent Steam Piston Packing," report:

That this packing is so constructed that but a small proportion of the steam pressure in the cylinder is allowed to act upon the packing ring, and this pressure is uniform throughout the entire length of the cylinder. By this arrangement, two of the most serious objections against steam expanded packing rings, viz: An undue amount of, and varied pressure causing excessive friction and an unequal wear of the cylinder, are obviated.

These, together with several other advantages, are secured, and still the piston is much lighter, less expensive, and more simple than the ordinary piston.

Respectfully submitted.

S. W. BALDWIN, Syracuse,
for Committee.

No. 21. STOVES, &c.

Best cooking stove, for wood, Co-operative Foundry Co., Rochester, N. Y. Large bronze medal.
Best cooking range, Swett, Quimby & Perry, Troy, N. Y..... Large bronze medal.
Best house heating furnace (base burner), Perry & Co., Albany, N. Y. Large bronze medal
Best house heating furnace (surface burner), Boyd, Gormonzinger & Co., Rochester, N. Y ..... Large bronze medal.
Best parlor stove, for wood, Co-operative Foundry Co., Rochester, N. Y. Small bronze medal.
Best hall stove, for coal, Perry & Co., Albany, N. Y., "Oriental" Small bronze medal.
Best exhibition of hollow ware, Co-operative Foundry Co.... Small bronze medal.

Best base burning fire-place heater and furnace, Thatcher Heating Company, New York..... Small bronze medal.
Best portable furnace, Thatcher Heating Company ..... Small bronze medal.

Special.

Best hotel cooking stove, "Olive Branch," Sheldon & Green, Troy .... High merit.
Best water boiler attachment, Bussey & McLeod, Troy ..... High merit.
Revolving water boiler, Sheldon & Green, Troy..... High merit.
Best apparatus for cleaning fires, Thatcher Heating Company..... High merit.
Best apparatus for heating water for agricultural purposes, N. Vanderwerker, Belleville, Michigan .... High merit.

Coal Cooking Stoves.

The committee are of the opinion that no first premiums should be awarded on coal cooking stoves without a trial of their practical merits. A large number of superior stoves were on exhibition, showing workmanship of the highest order; all were of the same general plan, differing only in proportions of their parts or in minor particulars; each exhibitor claimed for his articles some special merit, which was noted by the committee.

The exhibitors of stoves were Perry & Co., Albany, N. Y.; Pratt & Wentworth, Boston, Mass.; Bussey & McLeod, Troy, N. Y.; Swett, Quimby & Perry, Troy, N. Y.; Hicks & Wolf, Troy, N. Y.; Shear, Packard & Co., Albany, N. Y., and Sheldon & Green, of Troy, N. Y. Your committee would recommend the awarding of a premium indicating merit to each firm.

In judging of the merits of base burning stoves and furnaces, the committee have been governed by the belief that the reservoirs or feeders should be kept as cool as possible, so that no combustion of the coal should take place until it had passed quite down into the fire-place. This is accomplished by Perry & Co., of Albany, N. Y., and Hicks & Co., of Troy, N. Y., by passing the atmospheric air of the room inward and upward into an annular chamber surrounding the reservoir; the air thus heated in the process of cooling the reservoir is passed upward and outward into the room, or may be carried off in air pipes to heat a distant room.

The house heating furnace of Perry & Co. has these features. Being a base burner, it may be fed automatically for a long time; the reservoir is kept cool by the air of the furnace; the fire-place, grate, &c., are all arranged on the most perfect plan; it has a large radiation for the purpose of utilizing the heat more effectually.

Mowers and Reapers.

The exhibition of mowers and reapers was unusually large, and their general appearance, plan and workmanship gave positive indications of the genius and skill that has been stimulated into activity, evidently by the recent trial at Auburn. It must be exceedingly gratifying to the friends of the Society to know that this trial has produced so rich a harvest of success to both exhibitors and the farming public. It is gratifying also to know that the manufacturers of this class of machines are recognizing the same general ideas, and that their experience is rapidly leading them to an approximate equality of plan and operation.

Among the novelties we mention the improvement introduced by Mr. Brown, foreman of the Buckeye Works of Poughkeepsie, which consists in a contrivance for making the raking from the platform automatic. The operator may, by this arrangement, determine beforehand the size of the gavel, and by so setting the appa-

ratus, the rake will work of itself without his assistance. This is effected by a system of ratchet wheels which are acted upon by latches that fall by their own gravity, and are lifted by cams placed in suitable positions; in this way every third, fourth, fifth or sixth arm of the reel will be a rake, and so regulate the size of the gavel. By this arrangement the rake roller is prevented from being caught and broken, as was often the case in the self-rake.

The Hubbard mowing machine, for 1867, exhibited by M. G. Hubbard, Syracuse, presents a new feature in the attempt to supply a deficiency long felt: that is in making both wheels equable drivers in all cases of turning curves, &c. The driving wheels are free from all gearing whatever, and all the machinery is shut up in a square box in the center of the machine, removed from the clogging action of dirt, grass or straw. It is well known that in some situations, especially in low grounds, where the grass is thick and fine, a high speed of the knives is desirable; while in other conditions, a lower speed would answer the purpose. The new modification gives two degrees of speed, which can be changed by a simple motion of the operator; it may be thrown out of gear, or into either of the different speeds very readily. All these conditions are attained by the action of a triple gear, working in a sun and planet attachment adjusted to it. One of the driving wheels may be turned forward and the other backward, or both forward with different degrees of motion, yet both are equable drivers.

JOHNSON'S SELF-RAKING REAPER.

Entered by Johnson, Huntley & Co., Brockport, N. Y.

Prominent among the machines entered at the trial at Auburn, 1866, was the Johnson self-rake. It had been in the field but two years, a small number only having been manufactured. At that trial its operations received general favor, and while its valuable points were noticed, its defects were faithfully pointed out. The inventor wisely availed himself of the experience there obtained, and proceeded to perfect his machine. The special improvements introduced since that trial are:

1st. A screw elevating shaft for raising and lowering the platform, to regulate the height of cut, in place of a lever and chain, used at that time.

2d. The introduction of five rakes instead of four, which increases the reeling capacity, enabling it to work satisfactorily in high winds, and also enabling the operator to regulate the size of the gavels more perfectly.

3d. The mechanism for regulating the size of the gavels has been simplified very much, one strong piece doing the work which formerly required six.

4th. The possibility of the rake roller coming in contact with the end of the gate or switch is prevented, by making the gate or switch free to fly out. Before, the operator was obliged to throw the gate open and allow it to shut between the passings of the roller.

5th. The rake has been so arranged that it may be set to deliver the gavels automatically at every revolution. In uneven grain, the size of the gavel is governed by the driver with his foot.

6th. In addition to the screw elevating shaft for raising and lowering the platform horizontally, the pole has been hinged to the main frame, and a lever and ratchet cam introduced, for raising and lowering the height of the cut while passing along; and also for giving the proper angle to the guards, both in standing and lodged grain; thus by the screw elevating shaft the machine is set for the average of the field, and by this attachment the operator is enabled to vary the height of cut according to the height of the grain.

The rake has been attached recently to a large number of the leading machines of the country, and with uniform success.

Cultivators.

Messrs. Fords & Howe, of Oneonta, N. Y., exhibited their two-horse cultivator, the same style of implement which was awarded a gold medal at the Utica trial, 1867. Its weight has been reduced from 425 pounds to 275 pounds, and the price from $60 to $50. It is much simplified, and the adjustments are more easily and quickly made.

Messrs. Bickford & Hoffman, of Macedon, N. Y., have a new device in their grain sowing machine, which was on exhibition. It consists in throwing the distributors out of gear, and raising the tubes by one and the same motion; so that the distribution of seed is certainly stopped before the elevation of the tubes. This is effected by auxiliary action of a rack and pinion at the ends of the roller, thus requiring much shorter rotation.

Self Binder.

T. F. Gordon & Co., Rochester, exhibited an automatic binder; it was attached to a reaper of the usual general form. At the back of the cutter-bar was a square platform upon which the cut grain falls. At regular intervals, a rake extends over and downward upon the platform, then draws the bundle up toward the binder, which operates as follows: An arm that carries a spool of wire upon it projects itself through the rake and around the bundle until the two ends of the binding wire meet and are twisted together, which forms the knot; after which the arm and rake resumes its place, and the bound bundle falls off upon the ground. It binds bundles of different sizes with the same facility. The process of binding is about the only work of the harvest field that has yet to be done by machinery, and it is hoped that this machine may prove a step toward its accomplishment.

Turbine Water Wheel.

S. W. Marsh, of Rochester, exhibited a novel arrangement of turbine water wheel, which consisted of a form or plan of gate, as follows: A concentric ring surrounds the case, with blades attached to it that extend inwards at a proper angle, and form one side of the inlet spout; the other three sides being formed permanently by the case, so that when the concentric ring is turned round the blades move up and contract the inlet. It has long been known that the turbine water wheel requires the water to be discharged into it at the full force due to the head of water; and when any shutting off of the water is to be done, it should be at the outlet of the spout, so that the quantity may be diminished, but not the pressure. This plan of gate is designed to effect that purpose, and is a very superior mode of doing it.

Washing Machines.

About the usual number and variety of washing machines were presented. The most of them were based upon the fallacious idea, that in order to remove dirt, violent rubbing of the surface is necessary. It has been the policy of the Society to combat this error. Washing of clothes by machinery is a simple matter when understood, and can be most successfully done by dissolving what constitutes the dirt, and by agitation, to remove it. The best solvents known are alkalies and preparation of soap, with boiling. Boiling is the essential and first operation, and recent developments have shown that when boiling is attended with a forced circulation, it is most effective. A machine working upon this principle was exhibited by

W. B. Watkins, New York. It consists of an ordinary boiler, in which a false bottom was introduced, about two inches from the real bottom. This false bottom was perforated with holes about a half an inch in diameter, and had a rim around it, projecting downward two inches, so as to touch the bottom of t e boiler. At the ends of this part, there were tubes running upwards, turning over and inward. The operation was as fo ows:

Water properly soaped was put in the boiler, three or four inches of which was then nearly filled with clothes. The water as it boiled below, forced up a continuous stream of water, suds and steam, which fell upon the clothes and passed at once down to the bottom, to be again thrown up in a continuous circuit until the goods were clean, which occupied from eight to twelve minutes. It was observed that when the boiler was in action, there was a most perfect development of suds and circulation. The operation of this machine was fully satisfactory, and the committee award it the first premium, for the reason that it did its work effectually without rubbing the clothes.

Next to this was the Doty machine, exhibited by J. W. McKindley, Rochester, which did its work by manipulation. The process of washing in this machine is upon the idea of absorbing the water and suds, and squeezing it out, and repeating this until the goods are clean. The committee award to this machine the first premium as a rubbing washing machine, because it operated upon the goods most harmlessly.

REMINGTON AGRICULTURAL WORKS.

The Remington Agricultural Works, of Utica, exhibited specimens of their work, which, from its extensive variety and high perfection of workmanship, attracted general admiration. Their schedule embraced thirteen cast iron plows, of different sizes and styles, four steel plows, nineteen specimens of horse-hoes and cultivators, one reaper and mower, corn sheller, three weeders, a large assortment of hand hoes, rakes, &c. Also cultivator and horse-hoe teeth made of steel, and of superior workmanship.

O. H. Adams, Union Springs, Cayuga county, N. Y., exhibited a large assortment of articles from the Cayuga Lake Bending Works, for carriage work, &c. The timber used—ash and oak—was of the first quality. The bending and shaping of the different articles show a high degree of skill and workmanship.

G. B. Phillips, of Poughkeepsie, exhibited a machine of all work. It can be rendered into a drilling machine for iron, or boring machine for wood; into a punch or gumming machine; then into mortising machinery, or for cutting mitres; and performs all these functions in a good and substantial manner. Price $75.

BRICK MACHINE.

J. A. Lafler, Albion, N. Y., showed his iron clad brick machine, to which was awarded the first premium at the late fair in Buffalo, for making best quality of brick. We believe it still maintains its superiority.

STEAM ENGINES.

There were two agricultural steam engines on exhibition, one by A. N. Wood & Co., Eaton, Madison county, N. Y.; the other by Clute Bros., of Schenectady. They were nearly of the same size and power (about ten horse); they were of the portable kind, with light, strong and tasty wheels and running gear. Their boilers were of the locomotive plan, and well proportioned and adapted to the purpose. The

details of the working parts were in the best style of pattern and workmanship. The chimneys were provided with spark arresters, and one of them (Wood & Co.'s) had a bundle of dry straw close to the top of the smoke pipe during the exhibition, without the least evidence of ignition. They may be used for any purpose within their power (beside agricultural), with economy, as in grinding grain, sawing wood or lumber, shingle cutting, pumping of water, &c. When compared with animal power, they are much less expensive in the first cost, as also in the cost of keeping; it is believed that our farmers will, ere long, learn that they may in many cases use the steam engine with great advantage. It is probably in the use of this article alone that they are so far behind the farmers of Great Britain.

Corn Husking.

Three machines were exhibited for this purpose, all having the same general features. First, there were two rollers into which the stalks were fed, *butt* foremost. These feeding rollers drew in the stalks until the ears came to them; there not being room for them to go through, they were arrested, their stems cut or broken off close to the ear, when the exterior husk was drawn off and passed through the rollers; the ears, with their soft interior husk on them fell back, and down, upon what we will call the stripping rollers. That finished the operation. They differed in detail, somewhat; as, for instance, the machine exhibited by S. R. Kenyon, of Greenville, R. I., was made as follows:

The feeding rollers were, one of them ribbed lengthwise, the other was of india rubber. The ribbed roller was so covered with a guard, as not to draw in or bruise the ear; the stripping rollers were of rubber, lying side by side, inclining downwards in pairs, and all revolved by cog gearing; each pair of rollers had a motion toward each other, so that when the ear lay in the groove formed by the rollers the husk was caught by their motion, and drawn off below. In this way the husking was completed.

In another machine, exhibited by Spoore & Loucks, Voorheesville, N. Y., one of the feeding rollers was iron, with corrugated, sharp teeth running lengthwise, the other of wood. The stripping rollers were placed crosswise, and driven by gearing so that they rolled their surfaces together. Above the rollers was an endless belt of leather, and cross pieces of wood; the purpose of this belt was to carry the ears crosswise over the stripping rollers, and thereby finish the work. The peculiarity of this machine consists in the cross stripping rollers (which are made entirely of iron), and the endless belt.

Messrs. Wheeler, Melick & Co., of Albany, exhibited Russell's corn husker. The feeding rollers are respectively of iron and wood, very much like the last, and differed from both only in the stripping rollers, which are made of iron, with spiral grooves in their surfaces, filled with india rubber, slightly projecting from the surface of the iron. These are inclined, and are worked in pairs like the first mentioned. In addition, there is a cross roller lying over the stripping rollers, driven with a belt so as to draw in and press down the ears into the groove of the rollers, and pass them along finished.

All these machines were tried upon the ground, and it was from the nature and result of these trials that the committee formed their estimate of their comparative value. The two first machines were fed carefully and sparingly, and did their work equally well. No just estimate can be formed as to how they will work when crowded or forced up to the necessary speed. It may be possible that the want of power or

material, or both, prevented their working them to their full capacity. It is not the intention of the committee to do either of these parties injustice, or to speak disparagingly of their machines. There were special points in each thought to be improvements; as for instance, in the Greenville machine, the guard over the ribbed feeding roller prevented it from bruising the butt of the ear; so the iron rollers in the New York machine will be decidedly more durable than rubber, or iron and rubber combined. The machine exhibited by Wheeler, Melick & Co., was worked in the following manner, and showed the *confidence the exhibitors had in it*: The stalks were forced into it as fast as they could possibly be handled; the work was well done, every vestige of the husk was removed from each ear that passed through it, with slight shelling of corn. At a trial made with green stalks, after having been wet by rain, and hence in as unfavorable condition as possible, it husked at the rate of one bushel of ears in four minutes, or 150 bushels per day. The corn was small, and poor yield. It is claimed, when corn is of good size, and dry, that it will husk forty bushels per hour, or 400 bushels per day. We see no reason why it should not work at that rate.

Among the objects of interest exhibited at the fair may be mentioned the machine exhibited by the American Sheep Shearing Machine Company, manufactured in Nashua, N. H. It will shear 125 middle wool, or fifty of the wrinkled skinned Merinos in a day. Previously, machines having this object in view have been constructed to operate shears similar to those commonly used in hand shearing, which hacked the wool and frequently wounded the sheep. The cutter in this machine is a rotary one, which cuts the wool against projecting fingers which are immediately above it, very much upon the principle of a mowing machine. We saw it cut the wool from a skin stretched upon a board, and it accomplished its work with great celerity, the cut being much evener and closer than it could have been done by hand. This, of course, is a less difficult operation than it would be upon the curved surface of a living sheep; but it seems to us that it would be impossible to wound the sheep with this cutter unless it was done intentionally. The motion is communicated from the crank to the cutter through six pairs of bevel wheels, while the double universal joint allows of as much flexibility of motion as is possessed by the human hand. We hope that it will be thoroughly tested by wool growers, and we have strong hopes that it will prove a real success.

Among the miscellaneous articles worthy of attention, should be mentioned the following:

Bilge and center pump, by Hammond & Pennock.

Dumping wagon, by L. M. Osborne, Hamilton, N. Y.

Coach harness, by E. Kraft, Hamilton, Canada.

Horse blanket, by A. V. Smith, Rochester, N. Y.

Assortment Traveling trunks, by A. R. & T. H. Pritchard, Rochester, N. Y.

Printing press, by Gally, McNeil & Co., Rochester, N. Y.

Wood and iron ornamental fencing, by American Fence Co., Buffalo, N. Y.

Self-locking blind, by W. R. Hall, Rochester, N. Y.

Hoisting apparatus, by E. W. & W. L. Scovil, Manlius, N. Y.

Compound lathe chuck, by G. B. Fairman, Rochester, N. Y.

Grappling iron, by Hawley, McClure & Co., Utica, N. Y.

Steam engine, in operation, by Woodbury, Booth & Co., Rochester, N. Y.

Chase's gauge lathe, by Chase & Howe, Rochester, N. Y.

G. F. Warner & Co., New Haven, Conn., malleable galvanized iron tackle-block, and hook.

The committee regret that the rule adopted by the Executive Board, withholding the awards of diplomas to articles not upon the printed schedule, prevents their doing justice to the foregoing, (and many other articles enumerated,) that their merits truly deserve. In closing this report, the committee beg leave respectfully to submit the views suggested by the experience of this and several preceding fairs. It is evident that the exhibition of machinery is rapidly increasing, in both quantity and character, and deserves all the attention that can possibly be bestowed upon it. Justice to the exhibitors and the public imperatively requires that each and every article be faithfully examined, and fairly reported upon by appreciative judges, so that the meritorious may be rewarded in accordance with their degree of merit, and at the same time not to mislead or deceive the public by an improper award; to assist by counsel and encouragement those having meritorious devices in embryo, and advise those that are pursuing fallacies which evidently will end in failure.

HENRY WATERMAN,
Chairman of Committee.

CLASS V—FARM PRODUCE.

Judd Wheat Premiums.

Best 2 barrels of white winter wheat (Wicks' variety), O. Howland, Auburn, N. Y., weight 62½ pounds per bushel..... $100
Best 2 barrels red winter wheat (Mediterranean), 62½ pounds per bushel, O. Howland, Auburn, N. Y..... 100
Best 2 barrels white spring wheat (Excelsior), 63 pounds per bushel, Randall King, Kendall Corners, N. Y..... 100

Mr. Robert Embury, of Penfield, N. Y., presented a very fair sample of white winter wheat (Diehls), but not complying with the conditions, could not compete.

Mr. Noah Baker, of Perrinton, N. Y., exhibited samples of Soule's white winter wheat (good quality), but no statements.

The requirements of Mr. Judd and the regulations of the Society were fully complied with by Mr. Howland and Mr. King.

No. 22. Grain, Seeds, Hops, &c.

Best barrel white winter wheat, E. S. Hayward, Rochester, N. Y..... $10
Second, Stephen Leggett, Henrietta, N. Y..... 5
Best barrel red winter wheat, Jas. P. Edmunds, Brighton, N. Y..... 10
Second, Cox Bros., Scottsville, N. Y..... 5
Best barrel white spring wheat, James Pearson, Couricou, Canada..... 10
Second best barrel red spring wheat, Charles C. Holton, Rochester..... 5
Best barrel rye, H. Schoonmaker, Cedar Hill, N. Y..... 10
Second, Chauncey Chapman, Henrietta..... 5
Best barrel white oats, Robert Embury, Penfield, N. Y..... 10
Best barrel black or gray oats, A. Dryer, Brighton..... 10
Second, O. Howland, Auburn..... 5
Second best barrel winter barley, O. Howland..... 5
Best barrel two-rowed spring barley, Randall King, Kendall Corners, N. Y... 10
Second, O. Howland..... 5
Best barrel four-rowed spring barley, Robert Bell, West Brighton..... 10
Best barrel yellow Indian corn, shelled, J. Corbin, Liverpool, N. Y..... 10
Second, Isaac Brower, North Chili..... 5

Best barrel white Indian corn, shelled, O. Howland	$10
Second, H. G. Warner, Brighton	5
Best barrel field beans, Randall King	10
Second, Cox Bros., Scottsville	5
Best sample buckwheat, one bushel, O. Howland	5
Second, Isaac Brower	3
Second best sample medium clover seed, one bushel, J. S. Clark, Greece, N. Y	3
Best sample timothy seed, one bushel, O. Howland	5
Best sample flax seed, one bushel, Isaac Brower	5
Best sample sorghum seed, Mrs. J. T. Van Namee, Tomhannock, N. Y	5
Best 12 seed ears yellow corn, J. Corbin	5
Second, E. T. Sherman, W. Henrietta, N. Y	3
Best 12 seed ears white corn, E. T. Sherman	5
Second, O. Howland	3
Best 12 ears sweet corn, J. Corbin	5
Second, C. W. Crosman, Rochester	3
Best bale of hops, 100 pounds, M. C. Wetmore, Rochester	10
Second, Samuel L. Titus, Henrietta	5

No. 23. VEGETABLES.

Second best 12 roots of celery, George Cooper, Irondequoit, N. Y	2
Best 6 cauliflowers, George Cooper	3
Second, N. Culver, Arcadia, N. Y	2
Best 3 drumhead cabbages, G. Bahringer, Brighton, N. Y	3
Second, N. Culver	2
Best 3 savoy cabbages, George Cooper	3
Second, H. Glass, Rochester	2
Best 3 heads of lettuce, George Cooper	3
Second, Mrs. J. T. Van Namee, Tomhannock, N. Y	2
Best 12 white table turnips, George Cooper	3
Second, C. W. Crosman, Rochester	2
Best 12 Swedish turnips, C. W. Crosman	3
Best 12 mangolds, long, C. W. Crosman	3
Second, E. S. Hayward, Rochester	2
Best 12 mangolds, globe, C. W. Crosman	3
Second, G. Bahringer	2
Best 12 blood beets, C. W. Crosman	3
Second, H. A. Brown, Rochester	2
Best 12 sugar beats, C. W. Crosman	3
Second, E. S. Hayward	2
Best 12 orange carrots, George Cooper	3
Second, C. W. Crosman	2
Best 12 white carrots, C. W. Crosman	3
Second, H. Glass	2
Best 12 parsnips, G. Bahringer	3
Second, C. W. Crosman	2
Best 12 roots of salsify, George Cooper	3
Second, C. W. Crosman	2
Second best 12 kohl-rabi, G. Bahringer	2
Best 12 red onions, S. S. Whitman, Little Falls, N. Y	3

Second, P. Golden, Chili, N. Y.	$2
Best 12 white onions, E. S. Hayward	3
Second, C. W. Crosman	2
Best 12 yellow onions, J. Corbin, Liverpool, N. Y	3
Second, S. S. Whitman	2
Best 12 tomatoes, G. Bahringer	3
Second, C. W. Crosman	2
Best 6 egg plants, G. Bahringer	3
Second, C. W. Crosman	2
Best half peck lima beans, E. S. Hayward	3
Second, George Cooper	2
Best exhibition of peppers, C. W. Crosman	3
Second, George Cooper	2
Best Hubbard squash, S. B. Payne, Pittsford, N. Y	3
Second, Chester A. Payne, Pittsford	2
Best marrow squash, G. Bahringer	3
Second, W. Jennings, Brighton, N. Y	2
Best field pumpkin, O. Howland, Auburn	3
Second, J. S. Holbert, Chemung, N. Y	2
Best half peck sweet potatoes, S. B. Payne	3
Second, C. S. Murdock, Ridgeway, N. Y	2
Best bushel early table potatoes, W. Hodges, Rochester	3
Second, B. Birdsall, Mendon, N. Y	2
Best bushel late table potatoes, O. W. Ellis, West Brighton, N. Y	3
Second, C. W. Crosman	2
Best grown collection of vegetables, variety considered, grown by the exhibitor, G. Bahringer	10
Second, C. W. Crosman	5

Special.

Giant wax beans, new variety, C. W. Crosman	2
Best winter radishes, C. W. Crosman	3
Second, summer, N. Culver	2

D. S. Heffron, of Utica, N. Y., exhibited a new seedling potato, originated by him from the Early Goodrich in 1864. He names it the "Climax," represents it as early as the Early Goodrich, more productive and healthy, and of better table quality. The tubers on exhibition are of good size, fine form, fine grain and solid.

Mr. Heffron also exhibited samples of the Early Rose, Goodrich, Harison, Gleason, Calico, Andes and Shaker Fancy Potatoes; very nice and worthy of notice.

George W. Best, of Utica, had on exhibition very fine specimens of the Early Rose potato. They were worthy of a premium, but not being entered in time were excluded from competition.

Messrs. Reisig & Hexamer, New Castle, Westchester county, N. Y., had on exhibition 150 varieties of potatoes, all named. The committee believe this to be the largest collection of varieties ever exhibited in America at one time, and recommend to the Executive Board the award of a silver medal.

W. H. Stodard, of Lisle, N. Y., exhibited fine Early Rose potatoes.

A. S. Johnson, of North Chili, N. Y., had some fine Harison potatoes. At the time the committee examined the potatoes the card was gone. Had we been satis-

fied they were properly entered they would have been awarded a premium. Such evidence being furnished, as to proper entry, we award Mr. Johnson $2.

Messrs. G. & S. Booth, of Norwalk, Ohio, had on exhibition some Early Rose potatoes. They raised nineteen and twenty-eight sixtieths bushels from two and a half pounds of seed.

H. M. Jennings, of Brighton, exhibited very fine Turban squashes.

M. R. Oliver, of Oswego, presented (too late for competition) two mammoth squashes, weighing 147 and 110 pounds. Variety Valparaiso.

Mr. E. S. Hayward, of Rochester, N. Y., exhibited two fine samples of Evergreen sweet corn. It was overlooked at the time of examination.

No. 24. Flour, &c.

Messrs. Pettee & Hagar, Detroit, Michigan, presented one barrel of No. 1 flour, very choice, but not complying with the requirement as to sample of wheat and statement of quantity used to make a barrel of flour, your committee do not feel at liberty to award a premium. As it was of very fine quality, we would refer it to the Executive Board, and recommend a suitable award.

O. K. RICE, Greenwich, N. Y.,
C. B. WAY, Camillus, N. Y.,
Committee.

No. 25. Butter.

Best package, not less than 50 pounds, made in June, J. S. Holbert, Chemung, New York	$20
Second, A. B. Benham, McLean, N. Y	15
Best package, not less than 50 pounds, made at any time, Isaac Bower, North Chili, N. Y	20
Second, S. A. Dewey, Walworth, N. Y	15
Third, Robert Lothridge, Rochester	10
Best sample, not less than 5 pounds in rolls, Mrs. E. Frazier, West Henrietta, New York	10
Second, Robert Lothridge	5

Special.

Miss Clara B. Clark, Parma, N. Y. (under thirteen years of age), one crock of butter, very fine quality, superior to any on exhibition, and worthy of a premium	10

Commended.

Miss E. G. Holbert, Chemung, thirteen years of age, for a fine jar of butter.

No. 26. Cheese.

Best American cheese of the usual character and shape, factory or other, over 1 year old, M. E. Myers, Charlton, Saratoga county, N. Y., (private dairy)	20
Best American cheese, as above, less than 1 year old, Simpson Cheese Factory, New Hudson, Allegany county, N. Y	20
Second, Horatio Graves, Wethersfield Springs, N. Y	15
Third, M. E. Myers, Charlton, N. Y	10
Best 5 cheeses, Horatio Graves	20
Second, M. E. Myers	15
Best 3 factory made cheeses, Peter Miller, Jr., Fredonia, N. Y	15

Second, A. J. Loomis, Cicero, N. Y.	$10
Second best 3 cheeses, made in a private dairy, O. C. Crocker, Binghamton..	10
Best 5 American cheddar cheeses, F. W. Collins, Rochester, N. Y.	10
Best 3 prepared rennets, F. W. Collins, Rochester	10

No. 27. BREAD, SUGAR, &c.

Best wheaten bread, Mrs. E. Frazier, West Henrietta, N. Y.	5
Second, Mrs. Isaac Bower, North Chili, N. Y.	3
Best rye and Indian bread, Mrs. Emma Brooks, Penfield, N. Y	5
Second, Mrs. Emma Brooks	3
Best sample maple sugar, 25 pounds, Horatio Graves, Wethersfield Springs, N.Y	5
Best sample maple syrup, 1 gallon, Robert Lothridge, Rochester	5
Second, Isaac Bower	3
Best sample of honey, 20 pounds, Severson & Livingston, Knowersville, Albany county, N. Y.	5
Second, Peter Miller, Jr., Fredonia, N. Y.	3
Best sample preserved fresh fruits, S. B. Rowley, Philadelphia, Pa.	5
Best half bushel dried apples, Mrs. Emma Brooks, Penfield, N. Y.	5
Second, Mrs. Charles Murray, West Brighton, N. Y.	3
Best half bushel dried peaches, Miss E. Diver, West Brighton	5
Best peck dried raspberries, Mrs. Emma Brooks	5

JACOB ELLISON, Middleville, N. Y.,
OTIS DILLINGHAM, Granville, N. Y.,
Committee.

No. 28. DOMESTIC WINES.

There were a few samples of grape wine, of family more than professional production, on exhibition, which call for no especial remark other than to say that, prepared for domestic use rather than for sale, they were creditable to the ingenuity and painstaking of their fabricators. As household wines, we award to Christian Hauser, Rochester, for Isabella, Clinton, and Diana wines, S. S. medal.

Ellwanger & Barry, Rochester, their wine could not be found by the committee, which is the more regretted, as these gentlemen are extensive propagators of the grape in many varieties, and it is presumed that any article of wine which they would submit is worthy of commendation.

To A. Shaw, West Brighton, for Isabella wine	S. S. medal.
To H. L. Smith, Rochester, for Diana wine	S. S medal.

Wines proper.

There were submitted many samples from the "Pleasant Valley" and "Urbana" Wine Companies of Hammondsport, N. Y., similar mainly in character to the specimens exhibited by them respectively in previous years, and entitled to the same commendation which they have heretofore received, yet with an evident advance in the quality, as well as variety of their wines, as opportunity has developed their means in production. We consider these establishments (the Urbana Company several years the junior of the other) from the time they have been in operation, the varied and excellent quality of the several kinds of wine they have made and exhibited, the various kinds of grapes they have cultivated and experimented upon, the success which has attended their operations, the skill, perseverance and energy which has accompanied their pursuit, as having established for them a character of

permanency in the business of wine making, which must rapidly lead them to both fame and fortune. It is a high achievement in the enterprise and persistency of those enterprising men who have founded and accomplished the costly wine establishments at Pleasant Valley, that they have overcome the prejudices of the public in believing that the latitude of forty-two and a half degress north would not produce a good wine grape, and that first class wines *of their kinds* could not be produced from their apparently unpromising soil and locality. These beliefs and prejudices they have successfully overcome, and through their large sales of wine and the wide districts of country over which their consumption now extends, have established a reputation which, we trust, is to be as lasting as it is well deserved.

As the vineyards which supply these establishments advance in age and variety of the grapes cultivated, it is believed that their wines will advance in quality and multiply in variety, as is evident from many of the samples now before us. Among the *new* wines is a sample of Iona wine from the Pleasant Valley Company, the first we have seen, a small quantity only of which was made the past year. From this sample we have little doubt that the high expectations of the producers and advocates of this grape will be fully realized. It is a sparkling wine, and exhibits in a striking manner the character of the grape in both taste and flavor.

Both these companies exhibited samples of *dry* Isabella wine of good quality, conclusive of the fact that its production can be adapted to a wide consumption, and at a moderate price to the consumer. The committee recommend the Isabella, *wherever it will ripen in perfection, as well as other grapes of a kindred quality of growth and bearing*, but earlier in ripening, and suited to many localities where the Isabella does not ripen, which will furnish the *cheaper* wines to an extent which the public may demand.

The Pleasant Valley Company have on this occasion, again shown specimens of the wine which was sent to the "Paris Exposition" of the year 1867, and there commended (as within the knowledge of one of this committee there present), as second best to the samples of similar character grown in France (the champagne), which are conceded to be the best in the world.

The Urbana Company also showed their sparkling "Imperial" samples, the same as exhibited last year at Buffalo, and fully maintained the commendation there received.

Other and valuable varieties, considerable in number, and some of them new, were shown by these companies, which we have not now time to specify, but each of them showing evident progress in wine making and gratifying in promise.

We award to the Pleasant Valley and the Urbana Wine Companies, each, the silver medal of the Society.

Excellent specimens of "Norton's Virginia" and "Ives' Seedling," made at Cincinnati, Ohio, were presented by Mr. Champlin of Pleasant Valley. Both of these had more of the characteristic features of Burgundy wines than have yet been made from grapes of American origin; and were both found to contain those qualities which highly commend them for medicinal use.

Brandies.

Specimens of superior grape brandies were exhibited by both Urbana and Pleasant Valley Companies, although of different age. These liquors were pronounced by several competent judges, to whose taste they were submitted, of a quality equal to the best French brandies of similar age. S. S. medal to each exhibitor.

Currant and other Cordials.

The *currant* wines, and other fruit liquids coming under the Society's general name of *cordials*, were severally creditable to their makers and exhibitors, and we recommend to each one a premium of $3.

Cider.

Neither of the specimens of cider shown, we regret to say, were up to the standard that so common a national beverage should attain for special commendation. Cider, *properly made and put up*, is an excellent article, and the art of its good preservation is not difficult to either learn or practice.

Vinegar.

To A. Birdsall and E. W. Sylvester, for very superior samples of venegar, five dollars each. Among the other samples of the article shown, some were passable, merely, and others hardly that. An article so indispensable in domestic economy cannot be too carefully and skillfully prepared, from the abundant and cheap material which our country produces.

"Wine-Plant" Wine.

Specimen bottles of liquid manufactured from the so-called "Wine-plant" were submitted for examination. The committee have no hesitation in utterly condemning the production of this article under the name of *wine*. The plant producing it is simply the common *rhubarb* of the gardens—totally unfit for any purposes of wine. The sale of the plant under any other name is only an imposition on the public.

Raspberry Syrup.

To Mrs. Emma Brooks is awarded the first premium for a very superior sample of raspberry syrup, or shrub, which, in the opinion of the committee, should become in more general use as a summer beverage in all well ordered rural households. It is, when duly mixed with water, a cooling, grateful drink; healthful, palatable, *vehemently* good, as a part of your committee have for many years found by familiar association. The second premium to O. Howland.

Respectfully submitted.

LEWIS F. ALLEN, Black Rock,
ALEX. THOMPSON, M. D., Aurora,
JOS. PARK, JR., New York,
Committee.

ROCHESTER, *October* 1, 1868.

AWARDS.

Wines Proper.

Pleasant Valley Wine Company, Hammondsport ..... S. Med.
Urbana Wine Company, Hammondsport ..... S. Med.

Domestic Wines.

Isabella wine, Christian Hauser, Rochester ..... S. S. Med.
Isabella wine, A. Shaw, West Brighton ..... S. S. Med.
Diana wine, Christian Hauser ..... S. S. Med.
Diana wine, H. L. Smith, Rochester ..... S. S. Med.

Cordials, &c.

Currant, O. C. Crocker, Binghamton, N. Y. $3;
Currant, A. Shaw, West Brighton, N. Y. 3;

Currant, Isaac Bower, North Chili, N. Y.	$3
Currant, H. G. Warner, Brighton, N. Y.	3
Currant, Ellwanger & Barry, Rochester, N. Y.	3
Best raspberry cordial, Mrs. Emma Brooks, Penfield, N. Y.	3
Second, O. Howland, Auburn, N. Y.	2
Pure cider vinegar (very superior), B. Birdsall, Mendon, N. Y.	5
Pure cider vinegar (very superior), E. Ware Sylvester, Lyons, N. Y.	5
Brandies, Pleasant Valley Wine Company	S. S. Med.
Brandies, Urbana Wine Company	S. S. Med.

No. 29. DOMESTIC MANUFACTURES.

Best pair woolen blankets, Mrs. Wm. H. Graves, Blossvale, N. Y.	$5
Second, Mrs. John Johnson, Alden, N. Y.	3
Best 10 yards woolen cloth, Mrs. John Johnson	5
Second, Mrs. Amos Clark, Marcellus, N. Y.	3
Best 10 yards woolen flannel, Mrs. J. Johnson	5
Second, Mrs. J. T. Van Namee, Tomhannock	3
Best 10 yards flannel, cotton warp, Mrs. W. H. Graves	5
Best 10 yards cotton and wool kersey, Mrs. J. Johnson	5
Best 10 yards rag carpet, Mrs. Chas. Murray, West Brighton, N. Y.	5
Second, Mrs. Wm. H. Cook, Pittsford, N. Y.	3
Best hearth rug, Mrs. Elizabeth Hyatt, Henrietta, N. Y.	3
Best double carpet coverlet, Mrs. W. H. Graves	5
Second, Mrs. Abel Dryer, Brighton, N. Y.	3
Best knit bed-spread, Mrs. A. D. Burleigh, Rochester	3
Second, Mrs. E. Lovecraft (ninety-two years old), Rochester	2
Best quilted bed-spread, Mrs. H. Cannell, Rochester	3
Second, Mrs. Wm. Hickman, Brighton, N. Y.	2
Best balmoral petticoats, Mrs. C. L. Dayton, Alden, N. Y.	3
Second, Mrs. J. Johnson	2
Best woolen knit stockings, Mrs. Amos Clark	3
Second, Mrs. W. H. Graves	2
Best woolen knit mittens, Mrs. J. Johnson	3
Second, Mrs. J. T. Van Namee	2
Best woolen fringe mittens, Mrs. Amos Clark	3
Second, Mrs. W. H. Graves	2
Best woolen socks, Mrs. Amos Clark	3
Second, Mrs. J. Johnson	2
Best 10 yards linen cloth, Mrs. W. H. Graves	5
Second, Mrs. C. L. Dayton	3
Best 10 yards linen diaper, Mrs. C. L. Dayton	5
Second, Mrs. J. T. Van Namee	3
Best 10 yards linen kersey, Mrs. Amos Clark	5
Second, Mrs. C. L. Dayton	3
Best 10 yards linen bagging, Mrs. J. T. Van Namee	5
Second, Mrs. W. H. Graves	3
Best (cotton) knit stockings, Mrs. Amos Clark	3
Second (linen), Mrs. Amos Clark	2
Best pound of linen sewing thread, Mrs. Amos Clark	3

Special Discretionary Premiums—Class 5, No. 29. Extract.

The committee in Class 5, No. 29, in making their report, desire to speak in terms of high praise of the zeal and enterprise of the ladies who contributed to the attractions of Domestic Hall, in making and bringing forward for exhibition their various productions.

They would call attention particularly to the beautiful display of wax work by Mrs. H. B. Gilbert of Auburn, and recommend a premium of $5.

Wax flowers, leaves, &c., the work of Mrs. D. P. Flinn, of Geneva, $3. Wax flowers, &c., by Miss Perrine, of Rochester, $3. Natural flowers, preserved in a beautiful and peculiar manner, by Mrs. J. W. Maltby, of Rochester, $3.

The committee also award a premium to Mrs. Haynes, of Rochester, for a very fine display of worsted work and embroidery, $3. Also to her daughter, twelve years of age, for a beautiful affghan, $3.

The committee desire to notice a fine display of worsted work, silk embroidery, bead embroidery, affghans, &c., by McDowell & Co., of Rochester, and would speak in high terms of admiration of a large moss picture exhibited by Miss Evangeline Glankey, Rochester.

Miss Isabella O. Tyler, Rochester, nine years of age, for a beautiful affghan, made by her, $1.

The committee would call special attention to the exhibition of cloths, cassimeres and flannels from the OAtka Woolen Mills, Oliver Allen, manufacturer, Mumford, N. Y., and recommend Silver Medal.

Also, to E. Bostock, Albany, N. Y., for self-acting tucker, creaser and guide, a valuable improvement, certificate of merit.

The following are also reported as worthy of notice and commendation: Woven bed-spread, Mrs. J. T. Van Namee, Tomhannock, N. Y.; pressed flower wreath, Mrs. F. S. Irwin, Rochester; hair wreath, Miss Bessie Pinehurst, Mendon, N. Y.; worsted work, Miss Mary Haynes, Rochester; stocking yarn, Mrs. W. H. Graves, Blossvale, N. Y.; embroidered affghan, Mrs. D. G. Weare, Clifton Springs, N. Y.; woolen yarn, Mrs. John Johnson, Alden, N. Y.; vase wax flowers, Mary C. Cox, Wheatland, N. Y.; farmer's wreath, Clara C. Clark, Henrietta, N. Y.; affghan, Mrs. J. L. Wead, Binghamton; inlaid bureau, said to be made by a convict at Auburn, with a jack-knife, exhibited by Mrs. Sophia McCoy, Rochester; feather wreath, Miss Katy A. Moody, Big Flats, N. Y.; hair flowers, Friend & Meigs, Rochester.

Sewing Machines.

Howe's best family machine and machine for all work, exhibited by E. D. Barber, Rochester, N. Y. ..... Silver Medal.

Weed's manufacturing machine, exhibited by Lavan & Williams, Rochester, N. Y. ..... Silver Medal.

JOSEPH E. ELY, Binghamton,
S. F. CARY, Binghamton,
Committee.

CLASS VI.—FLOWERS, PLANTS, DESIGNS AND FRUITS.

No. 30. Class 1.—Professional List.

Cut Flowers.

Best display, James Vick, Rochester, N. Y $10

Second, Frost & Co., Rochester ..... S. S. Medal.

Dahlias.

Best collection, James Vick	$6
Second, Ellwanger & Barry, Rochester, N. Y	3
Best 24 dissimilar blooms, James Vick	5
Best 12 dissimilar blooms, Frost & Co	3

Roses.

Greatest number of the newest and best varieties, Ellwanger & Barry	6
Second, Frost & Co	3
Newest and best 12 varieties, Ellwanger & Barry	3
Second, Frost & Co	1

Phloxes.

Greatest number of newest and best varieties, James Vick	5
Second, Ellwanger & Barry	3

Verbenas.

Greatest number of newest and best varieties, Ellwanger & Barry	5
Newest and best 12 varieties, Ellwanger & Barry	3
Best collection, 3 varieties American seedlings, not before exhibited, Ellwanger & Barry	1

German Asters.

Best collection, James Vick	3

Pansies.

Best collection, James Vick	3

Ten Week Stocks.

Best collection, Frost & Co	3

No. 31. CLASS 2.—AMATEUR LIST.

Cut Flowers.

Best display, Mrs. J. T. Van Namee, Tomhannock, N. Y	10
Second, Mrs. D. Lyday, Henrietta, N. Y	5

Dahlias.

Greatest number of the newest and best varieties, Mrs. J. T. Van Namee	6
Best 12 dissimilar blooms, C. W. Crosman, Rochester	3
Second, Mrs. J. T. Van Namee	1
Best 6 dissimilar blooms, Mrs. J. T. Van Namee	2

Roses.

Greatest number of newest and best varieties, Mrs. J. T. Van Namee	6
Best 12 varieties, Mrs. J. T. Van Namee	3
Best 6 varieties, Mrs. J. T. Van Namee	2

Verbenas.

Greatest number of newest and best varieties, Mrs. J. T. Van Namee	5
Best 12 distinct varieties, Mrs. J. T. Van Namee	3
Best 6 varieties, Mrs. J. T. Van Namee	2

Phloxes.

Best annual, Mrs. J. T. Van Namee	2
Best 6 varieties, perennial, Mrs. J. T. Van Namee	2

German Asters.

Best collection, C. W. Crosman, Rochester	3
Second, Mrs. J. T. Van Namee	1

Pansies.

Best collection, Mrs. J. T. Van Namee $3

Ten Week Stocks.

Best display, Mrs. J. T. Van Namee 3

Everlasting Flowers.

Best display, Mrs. J. T. Van Namee 3

No. 32. CLASS 3.—GENERAL LIST.

Pot Plants.

Best collection of house plants in pots, 20 different specimens, Ellwanger & Barry, Rochester, N. Y 10
Second, Frost & Co., Rochester, N. Y 5

Floral Design or Ornament.

Best, Frost & Co 5
Second, Ellwanger & Barry 3

Bouquets.

Best pair hand, Ellwanger & Barry 5
Second, Frost & Co 3
Best pair parlor, Frost & Co 5
Second, Ellwanger & Barry 3
Best basket bouquet, Mrs. D. Lyday, Henrietta, N. Y 5
Second, C. W. Crosman, Rochester 3
Best display of newly introduced flowers, not contained in the foregoing list, James Vick, Rochester 5

The committee would especially commend a very fine display of new and choice varieties of geraniums, introduced by Frost & Co., from the Paris Exposition.

The display of flowers was unusually fine; far exceeding, in beauty and variety, the usual exhibitions on such occasions. This, with the fine arrangement of the hall, confer great credit on the management of the committee having this matter in charge.

J. A. EASTMAN, Rochester,
NICHOLAS HALLOCK, Queens, N. Y.,
Committee.

No. 33. CLASS 1.—PROFESSIONAL LIST.

Apples.

Best 40 varieties and specimens, Ellwanger & Barry, Rochester $15
Second, E. Ware Sylvester, Lyons, N. Y 10
Best 20 varieties, E. Ware Sylvester 10

Pears.

Best 20 varieties, Ellwanger & Barry 15
Second, W. S. Little, Rochester 10
Best 15 varieties, Ellwanger & Barry 10
Second, W. S. Little 5
Best 6 varieties, Frost & Co., Rochester 5

Plums.

Best 12 varieties, Ellwanger & Barry 5
Best 1 variety, 12 specimens, E. Ware Sylvester 1

Quinces.

Best dozen apple or orange, Ellwanger & Barry	$3
Second, Frost & Co	2

Grapes.

Greatest number of good native varieties, Ellwanger & Barry	5
Second, Frost & Co	3
Best 1 variety, Pleasant Valley Wine Company, Hammondsport, N. Y	2
Second, Frost & Co	1

Watermelons.

Greatest number of varieties, A. S. Johnson, Chili, N. Y	3
Second, Henry Stevenson, Pittsford, N. Y	2
Best specimen of any variety, S. B. Payne, Pittsford, N. Y	1
Second, N. Culver, Arcadia, N. Y	Trans.

Muskmelons.

Greatest number of varieties, N. Culver	$3
Best specimen of any variety, N. Culver	1

No. 34. CLASS 2.—AMATEUR LIST.

Apples.

Best 20 varieties, A. Wilder, Greece, N. Y	12
Second, R. H. Brown, Greece, N. Y	8
Best 15 varieties, A. Wilder	10
Second, R. H. Brown	5
Best 10 varieties, Edwin Nichols, Brighton	5
Second, A. Wilder	3

Pears.

Best 15 varieties, John H. Bell, West Brighton	12
Second, J. S. Clark, Greece	8
Best 10 varieties, J. S. Clark	10
Second, James Spratt, Rochester	5
Best 6 varieties, John H. Bell	8
Second, J. S. Clark	4

Peaches.

Best 1 variety, 12 specimens, J. S. Clark	2

Quinces.

Best dozen apple or orange, S. L. Eaton, Rochester	3
Second, E. S. Hayward, Rochester	2

Grapes.

Greatest number of good native varieties, James M. Edmunds, Brighton, N. Y.	5
Second, J. S. Clark	3
Best 1 variety, James M. Edmunds	2
Greatest number of varieties of foreign grapes, grown under glass, Thomas Paul, Rochester	6
Best 1 variety, 3 bunches, Thos. Paul	2

Watermelons.

Greatest number of varieties, Israel P. Baker, Brighton	3
Best specimen of any variety, C. Olney, Pittsford, N. Y	1

Cranberries.

Best peck of domestic cultivated, Daniel Bushman, Pittsford, N. Y..... $5

J. A. EASTMAN, Rochester,
NICHOLAS HALLOCK, Queens, N. Y.,
Committee.

CLASS VII—MISCELLANEOUS.

Articles Worthy of Attention and Commendation.

Wm. H. Myers, Buffalo, stained glass memorial window.

Taylor & Bacon, Rochester, exhibition of photographs.

Mrs. John Turney, Rochester, ladies' and misses' corsets and shoulder-braces.

Kitty M. Thompson, Rochester, paper flowers.

D. N. Hulbert, Chicago, Ill., window screens.

Truman A. Clark, Rochester, Warner's carpet stretcher. An ingenious article.

Truman A. Clark, Rochester, Noble's patent bed brace.

E. Freeman, Worcester, Mass., apple parer, slicer and corer. A good article, worthy of commendation.

E. Freeman, Worcester, Mass., bread and meat cutter. Useful and good.

M. Verhoeven, Rochester, model of lime-kiln.

Henry J. Mackey, Rochester, case of imported musical goods.

J. W. Johnson, Brooklyn, Persian healing pine tar soap.

E. A. Loder, Rochester, glue, and curled hair. Good articles.

Mrs. Wm. D. Allis, Rochester, oil painting.

Taylor & Bacon, Rochester, exhibition of photographs.

D. M. Dewey, Rochester, collection of colored flower and fruit plates. One thousand varieties, ornamental.

J. B. Roberts, Rochester, photographic views, and photograph in oil.

Fox & Gates, Rochester, exhibition of photographs. Superior.

J. H. Beckett, Meriden, Ct., punching and cutting press.

Harvey C. Ellis, Rochester, exhibition of pencil drawings.

G. W. Geer, Rochester, lemon syrup.

W. H. Monroe, Rochester, potato masher.

Taylor & Jenner, Brockport, N. Y., self-acting car time indicator. Ingenious.

Charles Esterday, Rochester, engravings.

W. H. Montgomery, Rochester, Foster's patent artificial limbs. Worthy of commendation.

Howe & Rogers, Rochester, sample of carpets.

Ganiard Bros., New York, Turkish ottomans.

John Henderson, Albion, N. Y., exhibition of horseshoeing and turning.

Vanderberg & Weigele, Rochester, willow ware.

M. M. Darr, New York, Davis' patent preserving refrigerator. Very good.

Strong & Hoyt, Rochester, elastic sponge upholstery and mattress. Good and useful.

Stott Bros., Rochester, four cards of files and rasps. Very good display.

L. Zeigler & Co., Rochester, card of augers. Good.

N. Campbell, Rochester, window shades and fixtures.

Johnson & Mead, Buffalo, school desks and seats.

A. J. Atkins, Rochester, improved weather-strip.

J. M. Johnson, Buffalo, tinted copying books.

Child & Graham, Boston, Mass., magic ink. Useful and desirable article.

John Monaghan, Rochester, horse shoes.

James Orr, Mechanicsburg, Penn., model of Schroy's patent self-setting coercion animal trap. An excellent trap.

James Orr, model of Daniels' adjustable tyre-tightener. A useful invention.

E. S. Chamberlain, Hannibal, N. Y., Clow's shaft coupling. Very good.

C. C. Goodale, Rochester, kerosene lamps.

Wm. H. Carrier, Rochester, case of medicine.

D. O. E. Maize, Rochester, atmospheric kerosene lamps. Good improvement.

S. H. Webster, Penfield, N. Y., Bullard's dial attachment to stove-pipe.

Shelby Reed, Scottsville, N. Y., model of sheep rack.

Buell & Brewster, Rochester, Johnson's patent champion portable engine for extinguishing fires. Convenient and good.

James R. Chamberlain, Rochester, exhibition of rubber goods. Fine exhibition.

Merchants' Gargling Oil Co., Lockport, gargling oil.

Van Zandt Bros., Rochester, coffee, spices and cocoanuts.

Upright Patent Trunk Co., New York, upright trunks.

G. B. Fiske, Holliston, Mass., nail extractor. First rate article.

S. Coleman, Rochester, japanned and bronzed castings.

Wm. Chappell, Rochester, horse collars.

James Pyle, New York, Pyle's O. K. soap, saleratus, cream tartar, purified soap, star stove polish, O. K. blacking, &c. Good, and deserving notice.

B. T. Babbitt, New York, soap, yeast powder, soap powder, saleratus, coffee and starch. Good, and deserving notice.

The following articles were examined by a special committee, who report as follows:

H. T. Crowfoot, Hannibal, N. Y., tyre upsetter and punch.

Kedzie & Bunnell, Rochester, Kedzie's improved water filter.

E. Caswell, Lyons, N. Y., rubber spring bed attachment.

Josiah Curtis, West Avon, N. Y., straw board.

S. S. Braman, agent, Rochester, N. Y., vacuum harness oil.

Thompson & Lewis, Alexander, N. Y., Bryant's patent egg carrier.

Fuller & Richards, Buffalo, champion refrigerator.

Your committee have examined the articles mentioned above, and recommend them as well worthy of notice; and if not coming in conflict with the rules of the Society, would recommend a certificate of merit.

RICHARD CHURCH, Belvidere, N. Y.
WM. M. ELY, Binghamton.

The special committee beg leave to report upon the several articles to which you have called our attention, of which honorable mention should be made as follows:

Wendell Elastic Cushion School Slate Co., Albany, N. Y., exhibited W. C. Wendell's elastic cushion school slate. They are so simply arranged as to cause surprise that it has not been in use long since. It is a matter of very considerable saving in our public schools, and of no small item in a family of boys.

F. S. Pease, Buffalo. His lubricating and burning oils are, to all appearances, of perfect purity, and the certificates held by Mr. Pease from the superintendent of the Buffalo and Erie railroads, that one of his passenger cars had traveled over

twelve thousand six hundred miles with one oiling, is a sufficient guarantee of its perfection. Tests have been made on other roads with equal satisfaction.

Kingsley & Davis, Rochester. Their biscuit and cracker machine is a most convenient and labor-saving article for bakers, and is so readily adjusted to the shaping of the various sorts and sizes of crackers as to commend it to universal use.

Alling & Cory, Rochester, N. Y., globe printing press. It possesses advantages over any that have come under our notice, in the very convenient manner in which it can be managed by the operator without leaving his position, in its compactness of form and in the rapidity of its work; from one to two thousand impressions per hour being within its capacity.

The paper cutting machine, made by the same parties, is worthy of all praise, for the simple and satisfactory manner in which it can be adapted to cutting paper of any desired size or shape.

G. F. Senter, Albany. Everingham's portable derrick gives the strength of Hercules to the smallest boy, and its capacity appears almost illimitable. It raises weight with the simplicity of a pump handle, and lowers it with perfect security, and is so compact as to be very conveniently carried by hand.

G. F. Senter, Albany, also exhibits Everingham's clothes and hat rack. It is a most convenient article for travelers, or those keeping house in narrow quarters.

Excelsior Needle Company, Wolcottville, Conn. The Excelsior Needle Company exhibited samples of their manufacture, which do not differ in appearance from others, but from the process of manufacture are made so much more elastic as to be very much less liable to fracture. A steel rod of any reasonable thickness and of any shape is pressed, by swedges, into the finest needle, and the elongation and reduction is so done as not only not to fracture the fibre, nor to render it brittle by heat, but absolutely to *refine* the steel by the intense lateral pressure to which it is subject. The company will do much to remove one cause of exasperation to our ladies.

PETER V. KING, New York,
RICHARD CHURCH, Belvidere, N. Y.,
Committee.

Report of Special Committee on Tobacco.

William S. Kimball, Rochester, was the only exhibitor of this class of manufacture. He makes a very fine display of different brands of fine cut and smoking tobaccos, put up in styles of his own design. The rules of the Society do not permit of an award to this class of goods; otherwise the committee would pronounce in favor of Mr. Kimball, as they think the evident pains he takes to produce a superior article deserve particular recognition.

WM. M. ELY, Binghamton,
H. N. LESTER,
Committee.

Special Committee on Pianos and Organs.

We, the undersigned, appointed as special committee to examine the following pianos offered for exhibition, do report:

That the Square piano of the Central Piano Company of New York, is superior in evenness of tone, to those of Messrs. McCammon & Co. and Gibbons & Stone, but all inferior to that of Geo. Steck, exhibited by Geo. W. Clark, of Rochester.

The Square Grand piano of Messrs. McCammon & Co., of Albany, to be superior to the one exhibited by the Central Piano Company of New York, the treble of this last being too feeble for the increased power given to the bass.

The action of all the instruments is good, and evinces great care in the construction.

Prince & Co's organs, exhibited by George W. Clark, of Rochester, are sweet and good in their tone, while the new box-swell gives much additional power when operated.

G. Frauenberger, Rochester, collection of wood engravings of fruits and flowers, printed in colors, having also been examined by the committee, they report that the engravings have been indifferently done, the figures lacking in roundness, being flat, and the edges too sharp and prominent. The coloring is fair, although many of the shadows are too heavy and abrupt for the brighter lights.

D. G. ELLIOT, New York,
S. THORNE, Washington Hollow, N. Y.,
Committee.

TWENTY-EIGHTH ANNUAL FAIR OF THE NEW YORK STATE AGRICULTURAL SOCIETY AT ROCHESTER.

In the fair, the awards at which are now made public, the Society has again been prosperous and successful. The Executive Committee return their sincere thanks to the citizens of Rochester who invited the Society to their city, one of the best places in the State for the State fair, and who, by their subscriptions to the fund for the buildings and other necessary provisions, made the acceptance of the invitation possible; to the exhibitors, not only from this State but from adjoining States and provinces, who contributed to the immense show never before equaled, and whose attendance indicates not only a just regard to their own advantage, but an appreciation of the efforts of the Society and the value of its awards, and a confidence in the integrity of its administration, which the officers gratefully acknowledge and the continuance of which they hope for; and to the visitors from the agricultural societies of other States, and from the agricultural associations of Canada, for their presence and aid.

To the judges in the various classes the Executive Committee tender their grateful acknowledgments, for the cheerfulness and thoroughness with which they discharged their more than usually arduous duties. In the Implement Department, in particular, from the great number of implements and machines to be examined, the judges were incessantly occupied during the whole time of the fair.

Thanks and praise are due also to the old, well-tried servants and friends of the Society, who have, many of them for long terms of years, contributed to the successful conduct of the exhibitions, in their several capacities as superintendents, clerks, gate-keepers, and guards,

laboring with an efficiency and zeal induced by their attachment to the Society and pride in its prosperity and usefulness.

The number of entries in the several classes was as follows:

Class 1.	Cattle	208
Class 2.	Horses	181
Class 3.	Sheep, swine, and poultry	477
Class 4.	Implements and machinery	771
Class 5.	Farm produce	568
Class 6.	Fruits and flowers	163
Class 7.	Miscellaneous	294
	Total	2,662

The cattle show, though smaller than usual in numbers, was of remarkable excellence, the Devons making a larger show than for some years past, and the Jerseys coming out in increasing numbers.

Of horses there was a capital show, especially of stallions and young stock.

The entry of sheep and swine was smaller than usual. Some of the best flocks of long-wooled sheep were unrepresented on account of the change in the time of shearing not being known in season, but the quality of the sheep on exhibition was fully up to the standard.

The show of poultry was most interesting, not only from their numbers, but from the general excellence of the birds, and the number of fine specimens of new and rare breeds.

The immense show of implements and machinery was most gratifying and encouraging. There was a large number of successful or promising new inventions, and a very general and marked improvement in those before exhibited. It is doubtful whether the farmer is under greater obligations to the manufacturer than the manufacturer to the farmer. In bringing together the makers and inventors and the users of agricultural machines, our State fair performs one of its most useful functions. The exhibition of farm produce was an exceedingly creditable one; and, on reference to the reports of the judges, it will be found that they were obliged to recommend the award of several extra premiums, which were confirmed by the Executive Committee with much pleasure, particularly as regarded the award of the Society's medal to Dr. Hexamer, for Reisig & Hexamer, for their large and instructive exhibition of 150 named varieties of potatoes. It is to be regretted that the liberal premiums for wheat offered by Mr. Orange Judd, of New York, did not call out a larger competi-

tion; and the Society was also greatly disappointed at the non-arrival of the large collection of seed wheats, of kinds some of which are new and rare in this country, and other seed grains entered by George A. Deitz, of Chambersburg, Pa., the well known and intelligent propagator of improved varieties of grain, whose shipment, made in ample time, was unaccountably delayed in transit.

The ladies well sustained their department of the show with specimens of handiwork, generally combining usefulness and elegance.

The display in Floral Hall attracted great attention owing to the uncommon degree of perfection of the specimens of fruits and flowers, which were arranged with more than usual taste and skill by the able superintendent of this department.

The police arrangements of the Society, under Col. H. Bowen, were more than commonly efficient. Every year proves the wisdom of the policy of retaining tried and trusty men on the Society's police roll, even though they have to be brought from considerable distances. Col. Bowen was also aided by a detail of special officers furnished by the superintendents of the Metropolitan, Capital, and Frontier police, and the Executive Committee tender their thanks to those gentlemen for the assistance thus rendered.

The Executive Committee, by vote, also returned special thanks to James Vick, Esq., of Rochester, for his able management of the Department of Fruit and Flowers, and for the tasteful decoration of Floral Hall, entirely his own design, and executed, in great part, at his own expense; to A. J. Wilkin, Esq.. of Rochester, for legal advice and services kindly rendered without fee, on the ground that he considered the Society's service a public service; and to Messrs. Bromley & Co., the proprietors of the Osburn House, for the excellent accommodation provided for the officers and for their assiduous attention to their comfort.

The evening discussion on Tuesday evening on wheat, was opened by Joseph Harris, Esq., of Moreton Farm, Rochester, with a most sensible and practical paper, and was continued by other gentlemen to good effect. The discussion on Wednesday evening on clover was animated, and undoubtedly a useful one. The discussion on the winter feeding of sheep, proposed for Thursday evening, for which Mr. Jurian Winne, of Albany, had prepared a paper, was unfortunately prevented by the noise of a political demonstration on that evening, and the subject was postponed to the winter meeting.

The city authorities of Rochester, with their usual kindness, gave

the use of their large and commodious room in the City Hall for the evening meetings.

In closing this brief and inadequate notice, it seems proper to allude to a change of system, partially inaugurated this year, viz: The closing the entry books some time in advance of the opening of the fair. This was at first intended to apply to all the entries, but serious misgivings being entertained as to its practical working, it was restricted to the classes of live stock and fixed machinery. While the great and continuous expansion of the exhibition, for several years past, seemed to make the general application of the rule imperatively necessary, in order to secure ample accommodation for all entries; in order to be able to arrange the exhibition properly; in order to be able to furnish the judges promptly with their lists, and to have those lists properly classified and arranged; in order to get the awards out in time for the public to know what animals and articles were adjudged worthy of premiums, and for exhibitors to receive the full benefit of the awards; and to secure the due notice and examination of every entry; it was nevertheless doubted by many of the most experienced men in the Society, whether the public would accept and be satisfied with the proposed change, and many were of opinion that the exhibitions had become already as large as they ever could be. The announcement of the partial change was, however, received with favor and approval by some of those out of the Society, best qualified to give opinions on the subject, and exhibitors cheerfully conformed to the new regulation. The experience of the present year goes plainly to show, not only that the fairs of the Society continue to increase in extent and interest, but that the closing of the entries in advance is no inconvenience, while it produces great benefit to the exhibitors; and the conclusion forces itself upon us, that the plan has more than all the advantages claimed for it, presents no practical objections, and is proper and necessary to be extended to all the classes of the exhibition.

B. P. JOHNSON,
Secretary.

NEW AMERICAN GRAPES.

By S. J. Parker, M. D., Ithaca, N. Y.

In the 1865 report of the New York State Agricultural Society, I made quite extensive remarks on training of grapes, and am happy to say that they have drawn to me very flattering comment and correspondence; as has this series of articles published in these reports and those of the department of agriculture. And they cover very much of the ground and most of the facts known on the effort made to subjugate the Native American germs of grapes to the laws of cultivation. And considering how wild, and so to speak, how very *set in their ways* they were—for the force of ages of self-rule is not easily broken—we may commend our grape cultivators that they attempted so grand a change as this involved, and with results so praiseworthy, at so early a date. It is true we have yet no large in bunch and berry American grape, that can compare with the Muscat Hamburg, which is a grape larger in these respects than the old Black Hamburg, and as hardy, prolific and vastly superior in flavor to the parent Black Hamburg; so much so that it will eventually replace greatly the old favorite under glass. Nor have we in size any edible grape that in the least compares with the Golden Champion grape, which, for size and excellence, is said to be the best of all foreign grapes. But we have several that are worthy of general cultivation, and whose excellences are becoming more and more known. That they will be eventually excluded by better grapes that will be originated, is also certain; for the reader who but to-day commences can but feebly estimate the advance made. Some have been disposed to ridicule the fact that the United States officials distributed such grapes as Franklin, To-Kalon, Canby's August, Telegraph, and scores of others. But the fact that it is only about ten years since whether we had tartaric acid or a mongrel acid in our grapes was decided, and that the amelioration of our flavors and wildness was generally attempted, shows us that the distribution even of undesirable sorts was not in vain. Probably there are a dozen or two American grape growers, who are familiar with at least one hundred, and it

may be over that number, of varieties; and though we have but a small number of them now on our lists, yet the labor of proving them places their names among those to be honored when the hereafter history of this vast national enterprise shall be written.

Without further remark let me record what I consider the state of our experience with a few kinds worthy of general cultivation, or at least planting largely for remunerative value in those regions where they will grow; and, lest I seem invidious in their order, I will name them as nearly alphabetically as can be.

Adirondac.

Perhaps but few grapes have had warmer friends, and been more abused than this; been more widely advertised, and stood so diversely in the opinion of good judges. Neglecting all partizan contests, I apprehend that the degree of public favor has been less than it really deserves. It is evident that a few, imitating the reckless style of others reputed to be making money largely, have claimed for it a ready growth, and advantages that it has not. On the other hand, three certainly has been shown a bitterness that disinterested parties would not use in its condemnation. I am inclined, from what I have tried and observed of it, to say that it is with greater than ordinary difficulty established in its growth, either inherently, or in consequence of temporary damage to its constitution by excessive propagation. Indeed, I have never, under my control, been able to get a bearing vine of it; all have failed to grow, or, if alive, grow so feebly that they are yet in their infantile weakness; and I believe my experience with it is too often that of others. Yet it is also evident that hundreds of others, more successful than I have been, have had vines readily grow, come into fair bearing in a reasonable time, and that with no unusual difficulties. Of the grape itself, no disinterested man can condemn either the bunch, or berry, or its flavor. There is a spicy pleasantness in its tender sweetness, that, once tasted, will be sought again; and in size of bunch it is large enough, yet not the largest, with its fairly clustered berries. It is massive, weighty, tender, delicious when well ripened, and early. It is well worthy the largest vineyard planting, in the hands of those who succeed with it, and must be more popular as time introduces it. Though for years I have had vines under my observation, on my own lands, yet not having had a favorable growth, or fruitage, I cannot describe it as accurately or decisively as I would like to; but in other locali-

ties, and under favorable circumstances, it certainly has a vigorous growth, with good leaves, and a fruit that no man, once having eaten, will not, as I have said, ask for again. Its leaf is fair size, and gracefully shaped, and durable through the season; its wood rather small, but disposed to ripen perfectly; and the vine, in all proper localities, is hardy. Such being its character, it must be put down as a grape not to be condemned too hastily, and in any locality where it readily grows, must be a grape that will command esteem.

CREVELING.

It is with some misgivings that I place this on the list here to be spoken of. This is because, say what we may to the contrary, as usually grown, the bunch is small, imperfectly sets its berries, and a loose straggling bunch is the result. Yet I have seen bunches closely set, large in berry and bunch, and such as to do honor to any American grape. Several of these bunches have been measured by me, and are seven to eight inches long, and four and a half to five inches wide, and with berries the size of a large Isabella, and in color like a fully ripened Isabella. But, they were acknowledged to to be fertilized by Isabella pollen. Others, nearly as large, I have seen made by intwining a bearing branch of Delaware and Creveling together, by twisting the two branches or canes about each other, so that the abundant pollen of the Delaware fertilized the Creveling. Other large bunches are claimed to be the legitimate bearing of the vine with no artificial appliances. Yet I confess, that, as grown by several parties in this locality and elsewhere, the bunch is rarely over four inches long, or other than a loose ill shapen one, unworthy any claim except for hardiness and earliness. Nowhere have I found in it any flavor in advance of a well ripened Isabella, nor usually equal to that grape. Its appearance is not very much dissimilar to an Isabella in leaf and branches, though immediately distinguishable from that vine. On the whole, until it is proven that by acclimation, repeated slowly propagated renewals, or other well known arts of improvement, it can be made to be permanently large and close set in bunch, I shall not miss it if erased from our lists.

DIANA HAMBURG.

This is a grape of the highest flavor, large fine bunch and berry, but little known, even to well informed grape growers, while the public at large know nothing of it. It is a cross made between the Diana

and Black Hamburg, and has been proven on a rather unfavorable piece of ground, a few miles southeast of Rochester, N. Y., by its originator, Mr. Jacob Moore, who produced it with several other crosses, by cutting off the anthers of the Diana, and flooding the pistils with Black Hamburg pollen. No one seeing the grape can doubt but that the work was well done, for the result is that the Diana is nearly obliterated by the excess of pollen used; so that in the bunch and berry the Black Hamburg far outweighs the Diana. So perfect is the exclusion of the Diana, that it is very difficult to trace in it anything but the Black Hamburg. Its appearance, the size of bunch, the flavor, color, its whole is so nearly like the Black Hamburg that every one at first sight says it is an imperfectly colored Black Hamburg. The only trace of the Diana is in a reddish blush that lights up the black of the Hamburg. In leaf and wood, or cane, the Diana is more clearly seen. I have had bunches of one pound and over three ounces weight, as sweet and delicious, *grown out of doors*, *without protection* or effort to produce large bunches, as the same sized Black Hamburg bunches under glass. Such being indisputably the character of this grape, it will, as it becomes known, grow in favor, unless there is some fault that destroys its value.

On this point we have, I say it with sorrow, a clanship, and a frown for every grape that is not made acceptable to a certain clique of would-be grape autocrats. And to silence the claims of those who use foreign pollen on our native grapes, they use the skillful dodge of denying that there are any such grapes as hybrids; but all are, as they boldly assert, seedlings. What their policy is, in this, beyond mere disfavor, is not to me so clear. How the facts are clear, that all plants and fruits are affected by crosses of pollen, and how they can exclude the grape, is not so certain. They may find amusement in their loud denunciations, but in the end can gain nothing else. Of course, these illiberal men cannot approve of any grape reared by so humble a citizen as Mr. Moore.

Again, it is asserted that it mildews, both in leaf and in fruit; and another clique of mildew hunters have been able to find mildew on it. And to the delusive sanction of their respectable names, Mr. Moore has been led to add the admission that Diana Hamburg has mildewed. Mr. Moore himself, in a recently had conversation, seemed to have a very accurate scent for mildew; so much so that I laughingly advised him to follow in the trail of that useful class of grape writers, that are so learned on mildew, and know nothing

else about American grapes. His admissions have greatly injured the reputation of his own grape.

My own opinion is that the greatest fault of Diana Hamburg is its lateness; and that in young and badly trained vines, it may lose some fruit by mildew. Yet, October 1st, 1868, I saw Mr. Moore's vines loaded with fruit, in an edible but not fully ripened state; and this was weeks before Catawba and Isabella, of Hammondsport and Lake Erie, had reached their prime. Diana Hamburg, then, is earlier than Catawba or Isabella; and wherever these two vines ripen, I believe Diana Hamburg will also ripen; and as for value, as Diana Hamburg is vastly in advance of these two vines for table fruit, being, in my humble opinion, one of the very best of all American grapes for the table, the Diana Hamburg will exclude the Catawba and Isabella, to a great extent, when fully proven. To me, it is worth double these grapes. Further, in estimating its probable success, it must be recollected that the land southeast of the city of Rochester is flat, and underlaid greatly by clay. Not far from the Moore farm is the vast brick clay bed plain, damp and wet. The farm is a fine one for wheat and certain fruits, and has recently gone out of the possession of the Moore family; but for grapes it would be the last selection I would make for the trial of any grape. On a slightly elevated knoll, with all this flat and unfavorable surrounding, the Diana Hamburg was originated and proven; and I do not know of any one who has tested it on any better grape soil, or in any better region. I have one young vine, and, so far, not the slightest mildew has been detected on it. Mr. Tucker and myself propose to test it fully, by grafts, and on its own roots. So high is the delicate, refreshing aroma, so delicious its sweetness, that we are not disposed too hastily to condemn so valuable a grape. As to hardiness, both its parents are so. The Diana is hardy; so is the Black Hamburg; for it never dies from cold, but disease. I have had canes of Black Hamburg bear freely after exposure to sixteen degrees below zero of Fahrenheit. It is remarkable how early and completely Diana Hamburg ripens its wood. Therefore, I recommend the reader, if he lives anywhere where Isabella is valuable as a fruit, fearlessly to cast aside the alleged faults of this grape, and let it have a fair trial, giving him the assurance that if he can fruit the vine, he can find no American grape that he will eat with a greater relish.

Iona.

This is a grape that, if it equals the reputation of the past two seasons, will win the favor of the public. I am no favorer of that mode of exclusive advertisement practiced by the originator of this vine. That honeyed superlative exaltation of his own grapes, that constantly insinuated dislike and dispraise of all others, (except a few that are in a partisan manner, in my opinion, added to his own but to flavor his story for his own uses,) is not, as I believe, to be commended. So, I received the Iona with great distrust. It grew the first bearing season imperfectly, and its fruit seemed contemptible, until the last swelling out and last ripening, when it suddenly assumed fair bunches, not the earliest, but as an early grape. The same vine last season, 1868, was loaded. The canes were large, foliage finely in order, and the fruit, early in the season while still green, gave promise of rich clusters. We thought we should win prizes on it at the fairs. But competitive trial showed us that our experience had been that of too many others; and the conclusion seemed to be unavoidable that Dr. Grant, in the Iona, had given us a really valuable grape. It is not the largest in either bunch or berry, yet cannot be condemned for want of size. It is a clearly distinctive, reddish, grape, peculiar in a very pleasant flavor, showy on the table, fair in its wine, and easily packed and bears transportation well. It, as I now regard it, is one of the most promising new grapes.

Israella.

This is another one of Dr. Grant's new grapes; and is a large, dark colored grape in a longish and large bunch. Indeed, its resemblance to the large Creveling bunches I have described, is remarkable. Side by side I could not tell them apart readily. I cannot say that I consider its sweetness or flavor as at all superior, and hardly equal, to the ever delicious Isabella clusters of the Cayuga Valley. But it has the decided advantage of earliness. Its size, fair appearance, early ripeness, and other like qualities will ensure its fair trial everywhere.

Miles.

This is truly called the earliest of American grapes. I cannot speak of it by growth under my own care. But as I have seen it, it has the fault of Creveling, of small, imperfect bunches. Yet I have seen bunches, said to be made by entwining canes of Isabella and Delaware about canes of Miles, that were large and singularly like Isa-

bella; but much earlier. Therefore I name it as worthy attention, but not as yet proven.

If the entwining of Creveling and Miles with Isabella, Delaware, &c., will produce such changes, as are well known to be had in Muscat of Alexandria, when fertilized by Black Hamburg; then as Muscat Hamburg is a vast gain over the Hamburg, so the crosses of the Isabella, Diana Hamburg, and Delaware, or Creveling, and Miles must produce bunches admirable in size, as has been done in the foreign grapes named.

Salem.

This is one of Rogers' hybrids, early known as No. 22. It is one of the best of the Black Hamburg crosses. The reader will call to mind that Mr. Rogers used the inveterately wild Mammoth grape, that has one of its habitats near Salem, Massachusetts, as the mother or pistillate plant; and the pollen of the Black Hamburg for the fertilizing plant. And in face of such silly men as deny that a hybrid of an European and American grape can be made; and assert that least of all, Mr. Rogers made the cross; out of forty-five seeds that came up, not one was unchanged; all had excellences of their own. If any one is unwise enough to believe that those, who so persistently for biased purposes oppose Mr. Rogers, are in the right, and Mr. Rogers in the wrong, then all I have to say is, let him plant Mammoth seeds to the extent of *forty-five* "*seedlings*," and see if he gets one out of the whole, or even a 100 mere "seedlings," improved, so as in the least to compare with Mr. Rogers' grapes. That some of these unfortunate *seedling theorists*, for they are but *theorists*, not actually by *experience* acquainted with what they assert, are high in reputation and even in official station, only shows to what a bias even good men may lend their influence. Of the forty-five Rogers' hybr ds, about two-thirds were by Black Hamburg pollen, and about one-third by Chasselas pollen. Of the Black Hamburg pollen, two clear types were had, the Red of the Mammoth, and the Black of the Hamburg. The Salem is one of the Red grapes. It is large in berry and in bunch; it is sweet, with a soft pulp; and is regarded by those most familiar with it, as the best of all the Red varieties that Mr. Rogers has made. The vine is perfectly hardy in root, cane and leaf. It is difficult to see what there is in it that one can condemn. It has been largely set out in vineyard. It is a fine showy grape for the market; and what is much in its favor is that while No. 4, of Rogers,

is rather tender for transportation, and keeps badly in winter, Salem is far better in its transportation, and has few grapes to equal its winter keeping. Rogers' grapes are not yet fully proven, for that requires much time in many localities. From the disfavor of their early reception they have so far recovered, that everywhere they are rising to that just appreciation that they would have had, but for the partisan efforts of a few prejudiced individuals. Now they have friends everywhere. And Salem is one of the best.

Walter.

This is another new grape, that fortunately has the ample means of two very energetic men to push it before the public; and it will therefore be before the public so fully, that opportunities for prejudices to ripen against it will be few. It is really a very fine grape, though but little proven except in the hands of its very strenuous advocates. It is claimed to be a cross of the Diana pollen on Delaware. But the details of the authority for this, though I have widely published my request for all such facts to be sent me, and have written to the proprietors themselves for the mode and time, and other historical facts, I have never learned; they have either not received my letters, or have been too busy in their own plans, or had not the inclination to reply. The strongest evidence against its being a cross is, that at the Hammondsport Grape fair of 1868, I exhibited the Wyoming Red, which does not pretend to be other than a seedling, and there was a singular resemblance between the two; yet I am not satisfied that they are one and the same variety. But, such questions aside, as I have said, if the grapes given to me by the exhibitor, both at the Hammondsport and Rochester fairs of 1868, were real Walters, and fair samples of the grape, I have no hesitation in saying the Walter grape is one that not only no grape grower can despise, but must value as one of the best yet out. It is at least twice as large as the Delaware, and fully equal to Delaware in quality, if not decidedly superior. It is graceful in shape of berry and bunch, resembling in its general appearance an overgrown Delaware, a rich mahogany color, with a clear white pulp, quite soft and melting, yet with a residue pulp that remains on the finger when crushed. If the grape when generally diffused equals the samples shown, it may be considered as one of the established grapes, winning its way successfully before the public. Such are the now prominent new grapes, worthy of much considera-

tion in the State of New York, and may be said to be all that really, for our State, can be clearly spoken of. If I have omitted any, to the displeasure of any person interested in those that are meritorious, the originator only is at fault. For years every originator of *any new grape* has been requested to send me samples, statements, and give me full information. I am not at fault if so widely diffused a request is disregarded by them.

But there are several grapes that I am familiar with, that I can name as worthy of attention, though not so far proven as to deserve, in my humble opinion, a place in the list I have described.

MARTHA

is perhaps the most prominent of these. It was hoped that this grape would prove to be a White Concord, fully equal to its parent Concord. This, I am sorry to say, I fear is not the case. It is, so far as I have seen it, but half the average size of the Concord, and with no decided improvement in flavor over the parent vine. Yet it is a fair sized grape, in a rather compact but smallish bunch. I have yet the fairest hopes for the Martha, when it becomes acclimated in some localities especially suited to its growth. Its unfortunate qualities are that, like the Delaware, it is too small in bunch, though fair in the size of berry; and, like Concord, has a flatish, somewhat insipid flavor.

WYOMING RED.

This is the grape that, on a former page, I have spoken of as so very similar to, if not identical with Walter. Yet I am at present disposed to regard them as unlike. Both are similar in color, size of bunch, remarkably early, and ripen nearly or quite at the same time, and when crushed on the finger have exactly the same appearance. Wyoming Red came, before the Walter was known, from Northern Pennsylvania, and it is said from Wyoming Valley, to near Towanda, Pa., and thence to the hands of myself and Mr. John Davis, while in the employ of Mr. Cook of this place. For my share I took but a vine or two, and the balance were left by Mr. Davis in the hands of Mr. Cook, who set them out with and for Delawares. In 1867, they bore to some extent, but not fully till 1868. A single vine was put out north of Ithaca, a few miles, whose fruit I eat in 1863 or 1864, but was disposed to condemn it, as its bunch was small. It stood in a *nursery row*, and was too young to bear a full bunch. Perhaps a few other vines exist that I can trace out. The interest it elicited last

fall (1868), and the desire to buy it, when it could not be had, bespeak a favorable reception when ready for the market. I eat it, fully ripened, the last of August.

Rogers No. 7.

Were it not for one reason, I should name this as one of the highest on the list of all American grapes. This reason is, that Mr. Rogers has said that it will not ripen at Salem, on account of its mildew. And of the ten or twelve bearing vines that Mr. Tucker and myself have, several, in the season of 1868, were completely disrobed of fruit by mildew, which is more than I can say of any other American grape proven in the Cayuga Valley. But thus much I must add, the vines that mildewed had "black excrescence" of the root. This is a disease I have seen often in Hartford Prolific; and from which I have never seen a vine recover fully, though such vines live with a feeble growth, and produce ill ripened bunches. Other and healthy vines of Rogers No. 7, last fall had no mildew, either in leaf or berry.

As to hardiness, No. 7 is perfect in this locality and it is one of the best of all Rogers' hybrids in its growth. It bears a peculiar colored berry, in a large, but not the largest, bunch. It is also eminently early, ripening here by the 10th of September. No grape can exceed it in its delicate sweetness and choice aroma. In this respect it has no superior. Now, should further trial show that it is not subject to mildew in all healthy vines, as I hope and believe it will, then, for me, it is the best of all new varieties of American grapes, that I have as yet eaten, and I cannot too highly praise it. Diana Hamburg is most like foreign grapes in its peculiar refreshing delicacy; No 7 even exceeds this in its aroma, and almost pulpless softness. The former crushes by a gentle closure of the teeth, the latter melts, in its early ripeness, in the mouth. He who despises either grape is unwise. He who does not attempt to grow both is behind the age. He who succeeds in either will be fully paid for his labor. He who eats No. 7 will have everything he needs in an early grape. He who wishes a later grape, and can get it in the Diana Hamburg will not be disappointed.

———— or Knox's Seedling.

This is a grape that, so far as I am aware, has fruited but two seasons; 1867 by a few bunches, somewhat fully in 1868. I have seen but two leaves of the vine, and but three clusters. From these I have

only to say, that no bunch can be more gracefully beautiful, more thickly set with large, but not largest, berries. There is something about it that clearly proclaims that it is of the same family as Martha, for it has the same clear white bloom over the same yellowish white, and is moulded after the same chiseling out of berry and bunch, but is every way so much more exquisite, that when seen, it cannot fail to be admired. Its flavor is a favorite of mine.

The reader will recollect that I am speaking of it merely as I saw it, for I have as yet received nothing of its history. I should say that the Concord was its parent, either directly or indirectly. It is not as large as the average Concord, yet is larger than Martha, in bunch. Several who have seen the original vine say that in leaf, cane and habits it is unexceptionable. It evidently captivates at first sight. And I should be very unjust to my present impressions did I not express great hopes of its future, for it seems to be a very early, hardy, white grape.

And here I take occasion to say that we should seek especially white grapes, as we really have no one that has any decided merits, unless it be Martha or this new seedling. Let us for a moment scan our white grapes. There is the *Cuyahoga*, which is a beautiful cluster both in its berry and bunch, but it is so very late that few are able to ripen it. As commonly seen, it lies chastely chiseled on the exhibition plate, but it is so insipid that it must not be eaten. A cane with a dozen bunches is charming in appearance. Twice I have eaten bunches ripened to a clear golden brightness, that were pleasant. So I cannot but conclude that it is beautiful, but not desirable. *Mottled.* This is more of an amber than a white grape. It seems of the more insipid class of flavors, and is not yet acclimated, even to its birth region, and hence though now and then good clusters are seen, yet it has not yet attained to a constant even character. *Lydia* is also in the same catalogue. Rather small in bunch, fair in its flavor; something one likes, something he is not pleased with. *Allen's Hybrid.* The disseminator of the Delaware puffs this as a hardy grape, suitable to be cultivated by every one, and as one of a very few likely to rival the Delaware. In my humble opinion nothing in grapes can be more absurd. The Cayuga Valley is not at fault in its over severity on any grape, by either mildew or cold, or in other respects. Yet, so far as I have seen it tried, Allen's hybrid fails to survive the winter here, unless protected by being covered by earth; or if its canes survive, they fail to bear. It is this setting the public

on a wrong track, that has, in my opinion thrown so much distrust on certain over wrought advertisements of Allen's hybrid. But, protected by several inches of earth, Allen's grape winters well and loads itself with beautiful clusters, and they ripen early, and must be picked *at the earliest possible moment or they crack open, mildew and rot.* When eaten at the right moment, no one can condemn the grape. I have thus eaten it with the highest pleasure. *It also bears transportation poorly.* I have been unable to send or receive it without being wet by its own juices, even if carefully packed. These three faults, its want of hardiness, its cracking open, and its transportation, must ever exclude it from vineyard culture on any very extensive scale. It will ever be a favorite garden vine for family eating, *if well cared for*, but never should have been sent out without the distinct notice of its faults. Large sales by any person not stating these things, I should regard as downright swindling. But, with this care, and if necessary completing the ripening in the fruit house, good Allen hybrid clusters can be had and eaten. *Rebecca.* As a white grape, this has had a few admirers. On more than one occasion, I have said, it is a very feeble grower, yet can be made to cover a trellis three feet high. It should be planted three or four feet apart in the row, and rows four to six feet from one another, and a trellis not over three feet; then, by a rich soil, fair clusters, though small and irregularly formed, may be had, that look richly in the fruit basket. In the poor fall of 1868, it ripened very imperfectly, and no one in such seasons would like its flavor. In long warm seasons I have eaten it with pleasure. On the whole, the small bunch, the irregular shape of the bunches, the feebleness of the vine, and especially its uncertain ripening, may well exclude it from recommendation for general culture; and certainly no one who does not *know its habits, and the mode of rearing it, need think he should plant it.* Such are our principal white grapes, that are really such, for I do not name certain others, called white, but which are uncolored red grapes. The list is certainly not likely to make an American grape grower very enthusiastic as to our white grapes; unless I name here the White Scuppernong, which is a much fairer and better grape than it has had the reputation of being. But more of this a little further on. Certain inedible germs, excessively wild, and certain untried grapes, I do not name.

In view of the whole matter, it is to be most sincerely hoped that Knox's seedling will fill this gap in our grape list; and I will

acknowledge that I am captivated at the first glimpse I have had of it.

THE SCUPPERNONG.

I name this grape, not because it has been tried at the north, or, perhaps, ever will be a successful grape at the north, though some early seedling hybrid, or cross of it, may be had, that will be a success. And, as intelligent culturists, we can suffer no grape to be disclaimed for any locality until tried. The Catawba is said to have been found on the banks of the Potomac by a single wild seedling plant, by Major Adlum, who in 1823 said, that, in giving that grape to the public, he had conferred a national benefit; yet grows and ripens best at the north. It is also said that Catawba originated in South Carolina. I am inclined to believe the former statement, because it is so easy to mistake any red grape for Catawba. Before I had made grapes an especial study, I found two grapes in the Ramapo Valley, one a black grape that was ripe August 18th, and I made a gallon of grape preserves of it, or rather my wife did, which is the same thing, that were much admired by our friends in Middle New York for a year and a half, that we kept them as remarkably choice in flavor. This grape I have scoured the mountains of Ramapo, Sloatsburg, and the old Schultz farm for since, but have been unable to find. Probably it was a single vine, and has been destroyed. It stood by the old Erie railroad tank between Ramapo and Sloatsburg, a few rods southeast of the tank, and ran on a pile of stones full of copperheads and rattlesnakes. In Sloatsburg, a few rods below the present depot, stood several vines in the bed of the Ramapo river, red like the Catawba, and which I once thought Catawba, in its wild state. They grew in the gravel beds swept by every rise of the river. I have since sought these red grapes there and in the vicinity, regardless of the rattlesnakes, fine samples of which I have seen in the vicinity in by gone days, but have not found them or the Catawba like grape. I am aware how the grapes, that in childhood we eat in the Connecticut River Valley, seem to our better educated tastes with bullet pulps, and acrid enough to employ the caustic pen of some of the severest grape critics. And it is the red of the South Carolina grapes, with some resemblance to Catawba, that has given this as its locality, and not the Potomac. But, if it be true that Catawba was found in South Carolina, then the northern culture of Scuppernong may yet become a fact, as surely

as that of the Catawba. It is singular how very little accurate knowledge we have of the grapes, or other products of the south. And in speaking of the Scuppernong, I confess, that though I had corresponded with various gentlemen there on it, obtained colored, and said to be accurate drawings of it, yet I had no just idea of it until I saw the grape in northern made boxes, for sale last fall in our cities, reared by northern men who are applying skill to its culture, and thrift to its sale.

Here let me remark, that it has been recently asserted, that these boxes, sent to northern cities, did not sell well. In reply to that, I state that I have but little confidence in that old silly goose called *the public*. The public has no eyes, ears or feelings of its own. Like a weak-minded old fool, *the public* takes what is advertised—what is, by rumor, said to be public opinion. The old goose is constantly duped, and is never the wiser for it, when she finds out how much she has been deceived. You have only to cry "Catawba!" and she eats, in our cities, at the highest prices, tons of the green and unripe fruit, because there are for sale a few tons of choice Catawbas. Few in our cities know what good ripe fruit of any kind is. It is *opinion*, not *fact*, that rules the market too frequently. Therefore, all I have to say is, that if the Scuppernongs, as I eat them on quite a number of occasions, both in and out of our large cities, last fall, were not better than the half ripe Isabellas, insipid Concords, uncolored Catawbas, that I saw with my own eyes, flooding New York, Philadelphia, Baltimore and Washington markets, then I am not qualified to judge of flavors of grapes. It is a mystery to me, who eat the tons on tons of miserable fruit, last fall; but had the white and blue Scuppernongs been purchased, every one would have said, *is this the white Scuppernong, said to be so sour that it needs leather jaws to eat them? It is a fair, fine grape!* That I said repeatedly, as I eat them; and I said more, if these are Scuppernongs, then Scuppernong, not Concord, are for the millions, and they will win their way successfully. White Scuppernong, as seen in the boxes for sale last fall, looks, at first sight, more like some bullet-shaped white tomato, peculiar in its yellowish rough exterior, than like a grape. But it crushed easily beneath my teeth, and gave me a full sweet taste of a rich mellow juice. It is a large grape, and comes without a stem. The blue Scuppernong is precisely like the white, except that the grape is a bluish black. I consider these grapes as, in fact, established before this whole country. There were, I believe, last fall, for the first time,

Scuppernongs crushed for wine, by men skilled in the art of making choice still and sparkling wines. The result will be that its character will soon be known. If it has a bouquet really choice in its champagne, it will be brought largely north and manufactured. It evidently deserves better treatment than it has had, and is in hands that will give it the fairest trials both north and south.

Ives' Seedling, and Norton's Virginia.

These are too well known to need much to be said. Their use is mainly for wine; and, in the hands of experts in wine, they make an excellent article. Large clusters are occasionally seen; but under my observation, so far north as is the State of New York, these are exceptions with each, even allowing for the peculiarities of each in size. Fair clusters of Ives were seen at some of our fairs, last fall; but it is yet too early to say what will be the ultimate success of Ives in New York grape regions, as all vines are but recently introduced, and need age and experience, yet I cannot but express my hopes of its success, especially at such places as Brocton, Salem, &c., on Erie.

Several other seedlings merit some mention; among these the *Keuka* of F. M. McDowell, Esq., Wayne, N. Y., seems promising. Also quite a number of hybrids and seedlings by Charles Arnold, Esq., of Paris, Canada West; one of which, figured and imperfectly described in the November 1st, 1865, number of the *Canada Farmer*, if half equal to the plate, deserves more attention than it has had. It is said to be "a cross effected between a native grape of the best variety (*vitis cordifolia*) and the Black Hamburg." George W. Binford, Esq., Chebanse, Ill., says he has promising crosses of Black Hamburg on Concord, which are early and valuable. He says: "I began to hybridize in the spring of 1862 by using Black Hamburg pollen on Concord vine, from which I obtained twelve seeds from seven grapes, the only fruit which I allowed to ripen on a thrifty young Concord vine. The seven grapes were much larger than ordinary Concords, owing, perhaps, to the fact of cutting off all other fruit from the vine. Ten of the twelve seeds came up the next spring. I carefully protected them from the sun until they had rough leaves, after which I gave them no further care than to keep them clear of weeds." We commend this remark to the attention of, especially, young men and ladies, who desire to experiment in hybridization. Its features are: 1st. *A vigorous young vine.* 2d. Select only *a few flowers*, ten are enough. Do not attempt to get many seeds, but a few, well hybrid-

ized. 3d. *Cut out and off all other fruit*, so that you get the most vigorous and perfect berries. 4th. We wish size, earliness, &c., delicious flavor; secure that if possible by early, choice berries.

The vines obtained from these seeds he says he has fruited, and describes the fruit as "one-third larger than Concord, round, large bunch, not always shouldered, beautiful; when green, has specks of gray, which disappear when ripe. Ripens about September 1st. Tasted well August 21st. Very sweet, juice dark purple. Dark black with bloom. Skin rather thick." Vine healthy. He "cut away the anthers of Concord, and with the point of a small knife put the Black Hamburg pollen on the pistil." Says he has one hundred hybrids since made. If he has the best Concord Hamburg, he deserves much credit for it. Several other persons also claim to have made the cross of Black Hamburg on Concord.

I here take occasion to say, that I went as a voluntary, unpaid surgeon to assist in the care of our wounded soldiers in Grant's great campaign in 1864. The consequence was, that I but just survived the years 1864 and 1865. Having, in the fall and winter of 1865–6, about 1,000 hybridized seeds I distributed them to at least a dozen friends, supposing that I should never live to see the results, and fearing that in my own hands they would be lost. With Mr. Tucker, of this place, I made arrangements for other seeds. Mr. Tucker and myself have plants as follows: Ten Concord crosses, nine of Rogers' No. 15, five of Rogers' No. 3, one of Ontario, three of Catawba, two of Perkins, four of Delaware, five of Isabella, two of Oporto, one of Maxatawny. In these Black Hamburg pollen, Delaware pollen, &c., were used. They will, in 1869 or 1870, begin to bear fruit. And I confess that I shall be much disappointed if a few of these crosses are not worth attention, as for example, Concord Hamburg, Concord Delaware, Delaware by Rogers' No. 15; and others with like promise of value. The leaves and wood of several are very peculiar, and most of them are in vigorous growth. Of the seeds I have fertilized by diverse pollen I have less hopes, as it requires too long and patient care to reach the results. As to the hybridized seeds I have given away, I have already convinced myself that a visit of one of the grape autocrats, as he would be, led one friend to cast away the plants, as "hybrids were impossible." Another has died. A third has lost all but two. While others write that they have six or eight living out of thirty to sixty seeds sent them. And here let me say to my numerous friends and correspondents, that I hope each one will

continue the seed planting of the grape. Not without system, for that is too useless a process. At least this can be done. Intertwine a Creveling and a Concord. During inflorescence blend two clusters of each. Cut away the Creveling anthers, and let the Concord fertilize the Creveling pistils. Save and plant the seeds. Try and enlarge the Delaware, as for example by intwining a branch of Rogers' No. 15 with a branch of a Delaware. Cut away the Delaware anthers, leaving Rogers' No. 15 to fertilize the Delaware pistils. If you can triple the size of the Delaware, you have done yourself much honor, and gained a grape that your country's laws should defend your right in and give you at least ten thousand dollars reward for. Such are two out of at least scores of valuable lines of experiment trial.

This leads me to still another thought, which is, the propriety that Congress should pass an act, enabling the Patent Office, either with or without the sanction of the Agricultural Department, to issue a patent for any applicant who figures and describes a new fruit, plant, or other such like novelty.

It has been objected that such a law would be contrary to the laws of property, as for example, that an owner of a potato should sell the right to one person to plant and use the variety, and limit him to the sale *for eating purposes only*. For example Horace Greeley (see report Farmer's Club of February, 1869), buys for five dollars a farm right to raise and use the Rose potato. A patent would allow him to raise, eat, sell Rose potatoes; but his neighbor, Carpenter, buying of him, cannot plant the potatoes he buys of Greeley. This in the Farmer's Club, *as reported*, he says may be impracticable, or at least he fears so. But it is exactly the law of Hoe's printing press. He buys a press, uses it and sells his papers. The only difference is that the papers do not contain the germs of self-reproduction. The law is the same.

I advocate such a law: 1st. Because the patent law is well known; and if an exclusive right is just in the mere arrangement and construction of the parts of a mechanism, then the arrangement, or discovery, or production, of a new fruit is deserving protection. 2d. Because there is no reward to the originator of a fruit without it. As the grape propagation now is, all that is necessary, is that suitable propagating houses be erected; for example, fifteen feet wide and sixty feet long; and, if space be desirable, at least five of such houses, side by side. Next to the walls of these, on the inside, make wood

tanks, five feet wide, and with the water five inches deep. This will give a tank 125 feet long to each house. Let the propagator buy, at say three dollars each, twenty-five vines, which is seventy-five dollars. Let him heat one house December 1st of any year, and by January 15th he can establish two or three hundred vines in this house, by the green cuttings; and by bedding them in rich soil ten inches deep, on the tanks of his first house, by May 15th he can have his other houses rapidly filling with thousands of potted plants, and by June 15th or July 1st, be putting the green cuttings, fairly rooted, out of doors, in beds; and, by crowding the forcing process, go on till late in the season; and I dare not stake my reputation on the number of thousands of plants that in the second season he can bring into market, in direct competition with the originator of the vine. Thus the originator gets the pittance of seventy-five dollars, and the magic forcing house gets thousands of dollars. It may be said that the originator can do the same thing. I reply, so he may, if he is experienced in "green eye" propagation. If not, he loses his labor; and at any rate the whole sales, at any profit, are confined to a few years, and before he has made a single thousand dollars, his vine, that deserved ample pay, has gone out of his hands everywhere.

The patent law is, I am too well aware, at the best, but an imperfect remedy, but is better than none; and at the end of more than one year's reflection on it, I am convinced that it is the best remedy that can be devised. The main defect in the patent law grows out of the uncertainty that must ever be about the question of novelty; yet some of the strongest patents are very limited in their novelty, or are built on suppressed facts. On these points, doubts, for fruits, can rarely exist. It is true, for example, that Delaware may be claimed to have originated in Ohio, when it had, at least twenty years before, been known in New Jersey. But the truth on fruits contains so limited an amount of matter, that such questions are very soon solved. But in a sewing machine, for example, the eye-pointed needle is as old as the pyramids; the plunging an eye-pointed needle through work on a table, is found in the old embroidery machines, as well as *putting the shuttle through the loop by hand*, and only the moving by complete machinery, aided by a high state of mechanical art, constituted the American invention. But such questions cannot often arise in fruits, for the original tree, vine or plant is known, and the produce of propagation readily traced.

The glaring injustice of the use by the public of another man's

labors, in a plant, is illustrated by the case of Rev. Mr. Goodrich, in the potato. Before he worked out the problem, we had almost the total loss of this esculent. He revolutionized the whole value of the potato in the whole United States. To-day the value of his labors cannot be less than ten millions of dollars annually, yet, if I am credibly informed, he died in poverty, and his family are worth less than five thousand dollars, their whole property told. I hope this is not the case, for if true, it is a shame that he who gave millions on millions, had no way to claim a suitable compensation from that class of men, of all others, the least grateful, the farmers, who do not even know or respect his name.

But I must close this article. In it I have attempted no labored argument, nor any accurate or scientific description. Nor have I given even the rough cuts of drawings and photographs of grape clusters, that I have of the varieties I have named, as well as others that it would now be premature to announce. Again I repeat in this public manner, that I request drawings, photographic pictures, accurately measured, in sizes, and histories of new grapes from all who have them, and samples of fruit, that I may be able, in a fair and disinterested manner, to describe them in this series of articles that, beginning in 1859, are found in the reports of the Agricultural Department of Washington and in the New York State Agricultural reports. If I have misstated any fact, I hope the reader will see that it is not by design, but unavoidable misinformation. As I have said, in the great campaign of Grant in 1864, I went as surgeon on the call for aid, and at Fredericksburg, White House, Va., and elsewhere, I labored with our wounded. In that work I poisoned my hand by wound-virus, next in malignancy to dissecting virus. Ever since, no one but myself knows the task and the burden that all duties of life have been; too feeble most of the time to train my own vines; too exhausted to even write out my thoughts and observations, I have been silent when I would have said and done more. If I recover the inveterate dyspepsia, that is the ultimatum of neuralgia and other concomitant evils, I hope yet to put in shape the large voluminous pages on the vine I have in a crude state.

I close by calling attention to the peculiar culture of the vine as seen at Hammondsport, N. Y. I do this because I am persuaded that a fair test of any grape cannot be had, without placing the vine under favorable circumstances; and at Hammondsport I have seen vines that I was almost ready to condemn, bearing such clusters as I did

not consider them capable of. Also, on the Hudson river, I saw a wild vine, a clear red grape, that, wild, never bore over four berries in a bunch, load the cluster with fifteen to twenty berries when under skillful training.

There seems, to the casual visitor at Hammondsport, no system in all the vicinity, except that the dryer and more covered with the slaty flat stone debris of the geological group, known as Chemung-group, the better; a careful avoidance of the gravelly and seemingly fine slopes of dryer lands in the valley, and the selection of abrupt, very steep hill-sides. To which is added the finely kept, almost weedless state of cultivation, and placing the vines on wire trellis, and training the fruit very near the ground, or as one of the vineyardists there expressed it: "We keep the fruit out of the rain-mud splash, and as low as can be, which is from ten to eighteen inches from the ground, and by a renewal system." The rules for dwarf pear training are few, and to a novice the trees may seem to be without any known plan so here, it is quite difficult to see at the first glance, how they renew their vines, yet one cannot but observe that in the vast number of vines to be cared for, it is considered not best to force accurately any buds, but by pruning compel the vine to produce canes from near the stump or surface of the ground; and of these constantly produced new canes, the best are selected for fruit and the rest cut away. In the report of this Society for 1865, I have quite elaborately drawn out certain forms, very fixed in their character, and other forms that are more of the random renewal training. I could clearly see that the principles I laid down, and those of our praiseworthy friends at Hammondsport, were the same. The training then they adopt, I should call a sort of *bush renewal;* that is, they form no distinct stem, head, or permanent branches, in such a shape that every vine shows them, or that each vineyard has a sort of personal identity in itself; yet you see a stem, a longish head, and branches to each vine, and a centering of the fruit on the lower wire in an admirable manner. Without figures and actual photographic views of their vines, I cannot, perhaps, make this plainer.

As I am of the opinion that nowhere in America can so many thousand acres of vines be seen in any one place; nor any set of clearer-headed, more enthusiastic, or wiser men, no more intelligent grape growers, more hospitable, or kind-hearted people; with better example of what can be done in American grapes, I am willing and desirous to cite their results as beyond all praise. More

can be learned in a few days, of correct grape culture there than anywhere else. So too in their wines; no one can overvalue the light, agreeable champagne of the Pleasant Valley Wine Company, nor the heavier, stronger wines of the Urbana Company. I should be sorry were the distinctive character of either company changed. I am not a wine-drinker myself, but I have occasionally tasted wines from all parts of the world. Certainly these companies need not be considered as claiming too much, if they clearly assume before the public, that they are supplying wines that will compete with any in the market. For myself I prefer the *extremely light wines*, such as I can drink several glasses of and feel no headache or annoyance afterward; and such they certainly give us. But wine is a side question to this article, and I only name it in the exuberance of my joy, that no American need feel any fear in saying that the men, the vineyard, the wine at Hammondsport, he is proud of, as having all the excellence of the old world, yet distinctively American, and in the hands of Americans.

Returning to my starting point, I must clearly insist that in the trial of new grapes, as by seedlings and by crosses they arrive, they be trained by some good system, and have competent culture. Many now neglected will thus be found to be valuable, and all will be better tested. And at last, when the final great American grape shall have arisen, or a score of such noble ones as Europe now has, fitted to our climate and eaten everywhere in all our broad domain, we, who by faith saw them, and attempted something to reach that result, will now and then be remembered as not in vain in the path onward, even if we die without the sight.

ON THE SOLUBILITY OF PHOSPHATIC MATERIALS,

WITH SPECIAL REFERENCE TO THE PRACTICAL EFFICACY OF THE VARIOUS FORMS IN WHICH BONES ARE USED IN AGRICULTURE.

BY DR. AUGUSTUS VOELCKER.

[From the Journal of the R. A. S. of England, 1868.]

The comparative efficacy of bones, superphosphate of lime, coprolites, and other purely phosphatic materials, depends, in a great measure, on the facility with which they pass into the watery liquids present in cultivated soils, from which plants derive their nourishment.

Coprolites, apatite, rock guano, and other varieties of mineral phosphates, scarcely produce a visible effect upon vegetation, even when they are applied to the land in a finely powdered condition and in large quantities, because they are not readily soluble in water, and consequently cannot be assimilated by our crops in quantities sufficient to promote a luxuriant growth.

In order to render mineral phosphates more useful, the manufacturing chemist, as is well known, dissolves them in sulphuric acid, or, in other words, converts them into superphosphates.

Experience has not only proved this to be an economical way of utilizing mineral phosphates for agricultural purposes, but has likewise shown it to be the only available means of converting the inactive phosphatic minerals into powerful artificial manures. If it be an admitted fact that such materials in a state of fine powder are of little practical utility to the farmer, it follows that manure manufacturers should render phosphatic minerals as completely soluble as possible by chemical treatment with acid. It may, however, be questioned whether this proceeding is equally well adapted, or equally necessary for converting bone-dust, boiled bones, ivory-dust, and such like materials, into efficacious artificial manures.

It is found that in porous soils, even half-inch bones are sufficiently soluble to yield abundance of phosphatic food to the turnip crop, in accordance with the practice of many good farmers. It is, moreover, well known that the intimate admixture of phosphate of lime with

decomposing organic matters favors the solution of the phosphate, and likewise that phosphate of lime is more soluble in the presence of ammoniacal salts than it is in pure water.

The various conditions which affect the solubility of phosphate of lime in water therefore have a direct practical bearing on the application of bone manures in agriculture.

In the present paper I purpose giving a brief account of an experimental inquiry, having for its object to determine the extent to which various phosphatic materials are soluble in water and in some saline solutions. Having directed my attention more especially to the circumstances which affect the solubility of bones, I shall have occasion to offer some remarks on the relative efficacy of the various forms in which bone manures are presented to the notice of the agriculturist.

SOLUBILITY OF PURE TRIBASIC PHOSPHATE OF LIME (BONE-EARTH) IN DISTILLED WATER.

In the first place, tribasic phosphate of lime, artificially prepared, was chosen for experiment. Its preparation was simply effected by pouring a neutral solution of chloride of calcium into a solution of ordinary phosphate of soda, taking care not to completely precipitate the soluble phosphate contained in the latter. The precipitate produced under these conditions was washed until a drop of the washings was not rendered in the slightest degree turbid by nitrate of silver.

Dried and heated, it is a compound consisting of three equivalents of lime and one equivalent of phosphoric acid, hence its name tribasic phosphate of lime.

100 parts contain:

Lime ($3\ Ca\ O$)	54.19
Phosphoric acid ($P\ O_5$)	45.81
	100.00

Some of the precipitated pure phosphate of lime was left in a moist gelatinous condition, and in that state its solubility in water was tested.

The remainder was burnt and afterwards finely ground.

In each case a considerable excess of the gelatinous and moist precipitated phosphate of lime, and of the finely powdered and burnt phosphate was mixed with about half a gallon of cold and distilled water, repeatedly shaken up from time to time, and left in con-

tact with the water for a week. The clear liquid resting on the undissolved phosphate of lime was then drawn off with a syphon, and filtered perfectly clear through fine filtering-paper. A pint of the clear solution was then evaporated to dryness, and the heated residue finally weighed. In each case two pints of liquid were evaporated separately, and the following results obtained:

Amount of Phosphate of Lime (3 Ca O, P O_5.) *dissolved in*

		One pint. Grains.	Per gallon. Grains.
Pure tribasic phosphate of lime precipitated, burnt and finely ground	1st experiment ..	.28	2.24
	2d experiment...	.27	2.16
	Mean	.275	2.20
Pure tribasic phosphate of lime precipitated and still moist	1st experiment ..	.72	5.76
	2d experiment...	.67	5.36
	Mean	.695	5.56

It will be seen that tribasic phosphate of lime in a gelatinous and still moist condition is much more soluble than it is after being dried and burnt. In the latter condition, according to these experiments, 1 part requires 31.818 parts of water to effect its solution; whilst in a gelatinous condition 1 part dissolves in 14.388 parts of distilled water.

Solubility of Tribasic Phosphate of Magnesia in Distilled Water.

Phosphate of magnesia being a constituent of the bones of all animals, I tried some experiments with artificially prepared tribasic phosphate of magnesia, obtained by pouring a neutral solution of sulphate of magnesia into a solution of ordinary tribasic phosphate of soda, and thoroughly washing the precipitated phosphate. In distilled water phosphate of magnesia is considerably more soluble than phosphate of lime, as it will be seen by the following determinations:

Amount of Phosphate of Magnesia (3 Mg O, *S* O_3.) *dissolved by*

		One pint of distilled water. Grains.	Per gallon. Grains.
Phosphate of magnesia burnt and finely ground.	1st experiment ..	.87	6.96
	2d experiment...	.89	7.12
	Mean	.88	7.04
Phosphate of magnesia in a moist condition	1st experiment ..	1.78	14.24
	2d experiment...	1.80	14.48
	Mean	1.79	14.36

Here again we see that the precipitated and still moist phosphate is much more soluble in water than that which had been burnt and ground.

Solubility of Phosphate of Lime in Water containing one per cent of Chloride of Ammonium (Sal Ammoniac), and in Solutions containing one per cent of Carbonate of Ammonia.

A large excess of phosphate of lime was placed in a bottle and repeatedly shaken with a solution of chloride of ammonium; after a lapse of seven days the clear liquid was drawn from the undissolved phosphate of lime, and filtered; one pint was then evaporated to dryness and the residue heated; the heated residue was dissolved in a few drops of hydrochloric acid, and the solution precipitated with ammonia; the precipitate was washed with a little distilled water and then dried, heated and weighed, when the following results were obtained:

		Amount deposited In 1 pint. Grains.	Amount deposited Per gallon. Grains.
Precipitated phosphate of lime ($3\ Ca\ O,\ P\ O_5$) still moist.....	1st experiment ..	2.77	22.16
	2d experiment...	2.67	21.36
	Mean	2.72	21.76

In the presence of an ammonia salt, phosphate of lime thus becomes much more soluble than in pure water. The addition of one per cent of sal ammoniac to the water employed in the preceding experiments increased the solubility of phosphate of lime in distilled water nearly fourfold.

Carbonate of ammonia likewise renders phosphate of lime more readily soluble than it is in pure water, but not to the same extent as sal ammoniac, as will be seen by the following results:

Amount of Phosphate of Lime dissolved by Water containing one per cent of Carbonate of Ammonia.

		In 1 pint. Grains.	Per gallon. Grains.
Precipitated phosphate of lime.....	1st experiment ..	1.42	11.36
	2d experiment ..	1.40	11.20
	Mean	1.41	11.28

In the next place, I have to record some experiments which have shown me that neither chloride of sodium nor nitrate of soda has any effect in materially increasing the solubility of pure phosphate of lime in water.

Amount of Phosphate of Lime dissolved by Water containing one per cent of Chloride of Sodium in Solution.

		In 1 pint. Grains.	Calculated Per gallon. Grains.
Precipitated phosphate of lime	1st experiment	.52	4.16
	2d experiment	.55	4.40
	3d experiment	.58	4.64
	4th experiment	.57	4.56
	Mean	.555	4.44

On comparing these results with those obtained by dissolving phosphate of lime in pure distilled water, it might appear that the presence of common salt had somewhat reduced the solubility of the precipitated phosphate of lime. I do not, however, think this was really the case, for the precipitated phosphate used in the salt experiments had been kept longer, and becomes less gelatinous and more dense than the specimen treated with distilled water; and direct experiments have shown me that this difference in the mechanical condition of the phosphate slightly affects its solubility in water.

Amount of Phosphate of Lime dissolved by Water containing one per cent of Nitrate of Soda.

		In 1 pint. Grains.	Calculated per gallon. Grains.
Precipitated phosphate of lime in a moist condition.	1st experiment	.87	6.96
	2d experiment	.85	6.80
	Mean	.86	6.88

The material employed in this experiment was recently prepared and very bulky, and on this account dissolved rather more readily than the phosphate of lime of another preparation in the previous trial with distilled water.

Making due allowance for the differences in the mechanical state of aggregation of the particles of the phosphate and the unavoidable errors which attach to all analytical determinations of that kind, I believe the results of the several determinations decidedly prove that neither common salt nor nitrate of soda increases the solubility of phosphate of lime in water.

In the next place, I determined the amount of phosphate of lime which distilled water is capable of taking up from pure bone-ash, commercial South American bone-ash, coprolites, and a number of other phosphatic materials, mentioned in the subjoined tabular statement of results.

In operating upon phosphatic minerals, guanos, &c., it is not sufficient merely to evaporate the watery solution to dryness; for, besides phosphates of lime, water dissolves more or less carbonate of lime, magnesia, and traces of alkalies, which, added to the weight of the phosphate of lime, in many instances would give quite erroneous results. By leaving an excess of the several materials in contact with water for a week, and subsequently filtering, a perfectly clear liquid was obtained in each case; of this two pints were evaporated separately to dryness; the residue was then dissolved in as little hydrochloric acid as possible, and the solution precipitated with ammonia; in some instances the precipitated phosphate was re-dissolved and thrown down a second time with ammonia, and, after washing with a little water, dried, burnt, and weighed.

The pure bone-ash was made from the shank-bone of a horse, and was washed with distilled water for a long time to free it from all saline matter contained in it before trying the solubility of the phosphate. Its composition in 100 parts was as follows:

Composition of Pure Bone-ash (from Shank-bone of a Horse).

Phosphoric acid*	40.29
Lime	55.01
Magnesia	.84
Potash	.25
Soda	.03
Carbonic acid	2.99
Sulphuric acid	traces.
Chlorine	traces.
	99.41

* Equal to tribasic phosphate of lime (bone-earth), 87.29.

Amount of Phosphate of Lime dissolved by distilled Water from the following materials:

		In 1 pint. Grains.	Calculated per gallon. Grains.
Pure bone-ash (from a very hard bone)	1st experiment	.13	1.04
	2d experiment	.17	1.36
	3d experiment	.14	1.12
	4th experiment	.15	1.20
	Mean	.147	1.18
Commercial sample of American bone-ash	1st experiment	.25	2.00
	2d experiment	.22	1.76
	Mean	.235	1.88

		In 1 pint. Grains.	Calculated per gallon. Grains.
Peruvian guano.....	1st experiment ..	.30	2.40
	2d experiment ..	.33	2.64
	Mean	.315	2.52
Kooria Mooria guano.....	1st experiment ..	.15	1.20
	2d experiment ..	.18	1.44
	Mean	.165	1.32
Sombrero phosphate.....	1st experiment ..	.10	.80
	2d experiment ..	.11	.88
	Mean	.105	.84
Monk's Island phosphate..	1st experiment ..	.13	1.04
	2d experiment ..	.12	.96
	Mean	.125	1.00
Suffolk coprolites.....	1st experiment ..	.09	.72
	2d experiment ..	.07	.56
	Mean	.08	.64
Cambridgeshire coprolites.	1st experiment ..	.08	.64
	2d experiment ..	.07	.56
	Mean	.075	.60
Estramadura phosphorite..	1st experiment ..	.10	.80
	2d experiment ..	.10	.80
Norwegian apatite.....	1st experiment ..	.06	.48
	2d experiment ..	.05	.40
	Mean	.055	.44

It will be seen that the earthy phosphates in Peruvian guano are more soluble in water than the phosphates in bone-ash; these, in their turn, dissolve more readily than the phosphates in hard rock guano or in coprolites. Indeed, all the harder and crystallized minerals in the preceding experiments yielded considerably less phosphate of lime to water than the more porous and amorphous materials.

Some of the preceding phosphatic substances were next shaken with solutions containing separately one per cent of chloride of ammonium, one per cent of carbonate of ammonia, one per cent of common salt, and one per cent of nitrate of soda, and the following results obtained:

Amount of Phosphate of Lime dissolved by Water containing one per cent of Chloride of Ammonium (Sal Ammoniac).

	In 1 pint. Grains.	Per gallon. Grains.
Pure bone-ash, yielding to distilled water 1.20 grains of phosphate of lime per gallon.....	.39	3.12

		In 1 pint. Grains.		Per gallon. Grains.
Commercial bone-ash, yielding to distilled water 1.76 grains of phosphate of lime per gallon.....	1st experiment	.12	after 3 days contact with water	.96
	2d experiment	.47	after 12 days contact with water	3.76

		In 1 pint. Grains.	Per gallon. Grains.
Cambridge coprolites, yielding to distilled water .56 gr. of phosphate per gal.	1st experiment...	.20	1.60
	2d experiment...	.18	1.44
	Mean	.19	1.52
Suffolk coprolites, yielding .56 grains of phosphate per gallon to distilled water.	1st experiment...	.15	1.20
	2d experiment...	.13	1.04
	Mean	.14	1.12

Amount of Phosphate of Lime dissolved by Water containing one per cent of Carbonate of Ammonia.

		In 1 pint. Grains.	Per gallon. Grains.
Suffolk coprolites.....	1st experiment...	.21	1.68
	2d experiment...	.22	1.76
	Mean	.215	1.72
Cambridge coprolites.....	1st experiment...	.19	1.52
	2d experiment...	.21	1.68
	Mean	.20	1.60

In all the preceding experiments the presence of ammoniacal salts increased the solubility of the phosphate of lime in the substances employed.

Solutions of nitrate of soda and of common salt, of various degrees of strength, left in contact with finely-ground phosphatic minerals for a week or longer, I found, dissolved no more phosphate of lime than distilled water did. It is needless to give the detailed results, for they were uniformly negative.

Passing them over, I have now to refer to a number of experiments instituted for the purpose of determining how far the manuring efficacy of half inch bones, fine bone-dust and other forms in which bone manure is sold, is affected by their relative solubility in water.

The raw materials employed in the first series of bone experiments were:

1. Very hard shank-bones of ox, coarsely ground.
2. Ordinary commercial bone-dust, made from rather hard bones.
3. Ordinary commercial bone-dust, made from rather porous bones.
4. The pith of ox horns (sloughs), a very porous description of bone.

5. Boiled bones (the refuse bones of glue makers).

An excess of each of these substances was placed with pure distilled water in glass bottles, in some instances for three days, in others for a week or twelve days; the liquid was shaken at intervals repeatedly, then allowed to settle and filtered clear. The clear liquid was then evaporated to dryness, the residue heated in a platinum capsule, and taken up with a few drops of hydrochloric acid. The solution was then precipitated with ammonia, and the precipitate collected, washed, dried and weighed, when the following results were obtained:

Amount of Bone-phosphates dissolved by one Gallon (70,000 *grains*) *of distilled Water from different kinds of Bone-dust and boiled Bones.*

		Bone-phosphates, dissolved by a gallon of water.
1. Hard shank-bones from oxen	1st experiment, after 3 days	.48 grains.
	2d experiment, after 12 days	.80 "
2. Commercial Bone-dust (made from rather solid bones)	1st experiment, after 1 week	3.68 "
	2d experiment, after 1 week	4.24 "
3. Commercial bone-dust (made from rather porous bones)	After 1 week	5.40 "
4. Pith of ox-horns	After 1 week	5.36 "
5. Boiled bones (glue makers refuse)	After 1 week	5.90 "

In explanation of these results, I would observe that the material employed in the first experiment was specially selected, washed perfectly clean, and broken up into coarse bits, which, before the experiment was begun, were long soaked in cold water in order to free them from any soluble impurities always present in ordinary bone-dust.

The very hard bone-dust, it will be seen, was scarcely at all affected by water in the course of three days; after a longer period it was somewhat more dissolved, but even then very little phosphate of lime passed into solution; for the actual quantity of bone-phosphates amounted to only eight-tenths of a grain per gallon, whilst in seven days about four times as much was dissolved from ordinary bone-dust. The two samples of porous bone-dust, as might have been anticipated,

were more soluble than ordinary dust; and the sample of boiled bones, which, it should be stated, was reduced to a tolerably fine powder before being placed in water, was slightly more soluble than the two preceding samples.

Boiled bones, or steamed bones as they may more appropriately be called—for they are the refuse after the gelatine has been extracted from them by high-pressure steam—vary greatly in composition and in their solubility in water. In many instances this bone refuse yields phosphate of lime far less sparingly to water than good samples of common half-inch bones, from which the fat and but little of the nitrogenous organic constituents have been extracted by boiling.

But although in the present instance boiled bones, in the shape of glue makers' refuse, yielded more phosphate of lime to water than the other substances employed did, it must not be inferred that this refuse material always affords, with greater readiness, a supply of soluble phosphates to plants.

The two samples of commercial bone-dust were both, as usual in the case of green or fresh bones, impregnated with grease, which in a great measure prevents their decomposition and their solution in water.

EXPERIMENTS WITH HARD BONE-DUST.

In the next place I tried some experiments to test the solubility of bone-dust made from hard bones, containing but little fatty matter.

The first sample was a specimen of very hard and fine dust; the second sample was coarser, and the third about as fine as the first, but made of bones not quite so solid. On analysis the third sample yielded the following results:

Composition of fine Bone-dust, made chiefly from hard solid bones.

Moisture	10.36
Organic matter*	30.92
Phosphates of lime and magnesia (bone-earth)	52.44
Carbonate of lime	5.16
Alkaline salts	.84
Sand	.28
	100.00

* Containing nitrogen	3.51
Equal to ammonia	4.56

Separate portions of each of these three samples were placed in glass-stoppered Winchester quarts, and shaken repeatedly with distilled water, the proportions being 500 grains of bone-dust for every deci-gallon of water. The liquid was then allowed to settle, and after twenty-four hours' standing, it was drawn off and filtered perfectly clear. A weighed quantity of the clear solution was acidulated with hydrochloric acid, and evaporated to dryness in a water bath; the amount of nitrogen in the dry residue being subsequently determined in the usual manner by a nitrogen combustion with soda-lime. When a watery solution of bone is boiled down to dryness, some ammonia evaporates, especially when the bones are in a state of putrefaction; for this reason a few drops of hydrochloric acid were added to the clear bone solution, and thereby the volatilization of any ammonia prevented.

In another weighed quantity (generally one deci-gallon) of the clear bone solution, the phosphates were determined by first evaporating the solution to dryness, heating the residue in a platinum capsule, and proceeding further as before described.

The bone-dust remaining undissolved was again shaken up with as much distilled water as was employed in making the first solution, it was then allowed to settle for twenty-four hours, and the filtered liquid was treated precisely in the same way as the first solution.

In like manner a third solution was obtained from the same bone-dust which was employed for making the first.

The object of these successive exhaustions with water was to ascertain if, with the removal of the more soluble nitrogenous constituents of bones, the solubility of the bone-phosphates remained the same or became less.

In the first watery extract the proportion of nitrogenous organic constituents, as we shall see presently, was much more considerable than in the liquids obtained by a second or third exhaustion with water, and as some organic matters appear to exercise a solvent action upon phosphate of lime, it was deemed desirable to try the effects of successive portions of water upon bone.

Calculated per gallon, the following results were obtained in the several experiments:

Table showing amount of Bone-phosphates and of Nitrogen=to Ammonia dissolved by one gallon of distilled Water from hard Bone-dust, digested for twenty-four hours in cold Water, in the proportion of 500 *grains to one deci-gallon of Water.*

		Amount of grains of		
		Bone-phosphates.	Nitrogen.	Ammonia.
1. Very hard bone-dust....	1st solution..	.63	9.10=	11.05
	2d extraction with water	.70	1.40=	1.70
2. Somewhat coarser bone-dust made chiefly from solid bone.....	1st solution..	2.46	13.26=	16.11
	2d extraction with water	2.11	5.49=	6.66
3. Fine bone-dust made chiefly from solid bone ..	1st solution..	2.80	6.30=	7.65
	2d extraction	2.10	2.10=	2.55
	3d extraction with water	2.80	.70=	.85

The hard texture of these three samples, more especially that of the first, obviously resisted the solution of the bone-phosphate in water; a result agreeing well with that obtained in experiments already cited.

Cold water in contact with bone-dust, it will be noticed, extracts an appreciable quantity of nitrogenous organic matter, more being present in the first than in the subsequent extracts.

The presence of a comparatively small quantity of soluble, organic matter, however, does not appear in these experiments to have increased the solubility of phosphate of lime; for, whilst the proportion of nitrogen, present in the shape of organic matter, was much greater in the first than in the second or third solution, the amount of phosphate of lime remained, practically speaking, the same in each set of experiments.

EXPERIMENTS WITH SPONGY HALF-INCH BONE.

A sample of commercial bone-dust, made entirely from porous, spongy bones, and boiled in an open copper, so as to extract most of the grease, but not to act sensibly upon the gelatine of the bone, was next experimented upon in the same manner as in the preceding instances. The results stated per gallon, are given in the subjoined table:

Amount of Bone-phosphate and of Nitrogen dissolved by one gallon of Water from spongy half-inch Bone, digested for twenty-four hours in cold Water, in the proportion of 500 *grains to one deci-gallon of Water.*

		Bone-phosphate. Grains.	Nitrogen. Grains.	Ammonia. Grains.
Spongy half-inch bone....	1st gallon of water ...	5.61	27.30	=33.15
	2d gallon of water ...	2.45	4.35	= 5.28

The results of this experiment show plainly that the nitrogenous constituents and bone-phosphates are more easily dissolved from porous, though very coarse bone-dusts, than from fine dust made from solid bone.

A portion of the nitrogen found in the first watery solution of the spongy bone was present in the state of an ammoniacal salt, for the bone-dust moistened with water on the addition of soda-lime, liberated free ammonia, which was readily perceptible by its characteristic pungent smell. The presence of an ammonia salt accounts for the much larger proportion of bone-phosphate in the first solution; for direct experiments with bone-phosphate of lime and weak solutions of ammonia salt, as pointed out above, show that the latter exercise a decidedly solvent action upon bone-phosphates.

Ammoniacal salts, being very soluble in water, cannot occur in any appreciable quantity in the second watery extract of the bones; this explains why much less phosphate was found in the second than in the first solution.

Experiments with Bone-meal and Ivory-dust and boiled Bones (refuse bones of glue-makers).

Ivory-dust and bone-shavings, being the turnings or raspings of hard bones, contain rather less organic matter and more phosphate of lime than common bone-dust. The sample employed in the experiments was thus composed:

Moisture	13.12
Organic matter*	26.12
Phosphates of lime and magnesia (bone-earth)	53.74
Carbonate of lime	5.39
Alkaline salts	.78
Sand	.85
	100.00

* Containing nitrogen 3.28
Equal to ammonia 3.98

Ivory-dust when free from sand, chalk, or other adulterating matters, is a valuable refuse, which may be applied to all purposes for which bones are used in agriculture. It is particularly useful to the farmer for drying wet and very acid mineral superphosphates. Coprolite superphosphate, when rich in soluble phosphate, is very apt to get pasty in its transit from the manure works to the farmer, and in such a condition it is not easily or advantageously applied to a root crop. Moreover, very acid mineral superphosphates should not be applied as a turnip manure without admixture with some other material, on light sandy soils deficient, as is often the case, in lime or other basic mineral constituents which abound in clays or marly soils, and which, by neutralizing or precipitating the acid phosphate and free sulphuric acid sometimes present in very acid superphosphates, prevent injury being done to the young plants.

Ivory-dust is not only an excellent material for drying up and greatly improving the quality of mineral superphosphates, it is likewise a very handy material for the production of home-made bone superphosphate; its dusty condition at once secures the absorption of oil of vitriol, and a dry superphosphate can be obtained from it without loss of time and without difficulty by being mixed in a wooden tub* with twenty-five to thirty per cent of brown sulphuric acid diluted with an equal weight of water. Such a mixture almost directly dries up sufficiently to admit of being placed in a heap; indeed, it is only necessary to mix the acid and ivory-dust as rapidly as possible together.

Whilst speaking of ivory-dust and its uses, I am anxious to put purchasers of this refuse on their guard, for its powdery state admits of the ready admixture of chalk, sand, ground gypsum, and vegetable ivory, which adulterants are not readily detected by the look or feel.

Vegetable ivory, in appearance, closely resembles bone shavings or ivory-dust, but being a vegetable production of the same chemical character as woody fibre, it has as a manuring agent just as little value as sawdust.

Some time ago an adulterated sample passed through my hands, and on analysis yielded results which, for sake of comparison, I place side by side with the composition of the pure substance:

* A small tub or barrel cut in two may be employed for the purpose, and a considerable quantity may be made in a short space of time.

Composition of Ivory-Dust.

	Adulterated with gypsum and vegetable ivory.	Good ivory dust.
Moisture	10.01	13.12
Organic matter*	40.40	26.12
Phosphates of lime and magnesia (bone-earth)	28.01	53.74
Carbonate of lime	2.87	5.39
Alkaline salts	.77	.78
Sulphate of lime (gypsum)	14.44	none
Sand	3.50	.85
	100.00	100.00

* Containing nitrogen	2.15	3.28
Equal to ammonia	2.61	3.98

Besides gypsum a considerable quantity of vegetable ivory was added to the adulterated ivory-dust, and in consequence both the amount of nitrogen and of bone-earth was much less than in the genuine commercial article.

Bones submitted to high-pressure steam may afterwards be ground to a powder almost as fine as coarse flour, and, when the process has been properly carried out, will be found not to have lost much nitrogen. Such a sample of steamed bone-meal was used in experiments on the solubility of bone materials, and yielded on analysis in 100 parts:

Composition of Bone-Meal (Steamed).

Moisture	9.11
Organic matter*	21.25
Phosphates of lime and magnesia (bone-earth)	61.94
Carbonate of lime	4.68
Alkaline salts	1.70
Sand	1.32
	100,00

* Containing nitrogen	2.84
Equal to ammonia	3.45

The bone-meal, ivory-dust and boiled bones were exhausted with three successive quantities of water, and several solutions were obtained, in which the amounts of nitrogen and dissolved bone-phosphates were determined as before, with the following results:

Table showing the amount of Bone-phosphate and Nitrogen dissolved by one gallon of Water, left in contact for twenty-four hours with Bone-meal and Ivory-dust, in the proportion of 500 *grains to one deci-gallon.*

		Bone-phosphate.	Nitrogen.	Ammonia.
Bone-meal	1st solution ..	9.10	7.01=	8.51
	2d solution ..	2.80	3.50=	4.25
	3d solution ..	1.70	3.15=	3.82
Ivory dust	1st solution ..	4.55	6.86=	8.33
	2d solution ..	2.45	3.43=	4.16
	3d solution ..	2.80	2.74=	3.33
Boiled bones (refuse bones of glue-makers)	1st solution ..	4.20	17.50=	21.25
	2d solution ...	2.10	2.10=	3.27
	3d solution ..	2.15	1.78=	2.16

In conformity with similar trials, the first solution in each case contained more phosphate of lime than the subsequent ones.

The glue-makers' refuse, it will be seen, yielded to water about the same quantity of bone phosphates as the ivory-dust, and the bone-meal about twice as much.

These variations in the proportions of soluble phosphates in the various forms in which bones are used in agriculture, no doubt must have a considerable influence on the readiness with which they are appropriated by our crops.

EXPERIMENTS WITH ROTTEN BONE-DUST.

Professor Wöhler, of the University of Gottingen, if I am not mistaken, first pointed out that bone-dust, moistened with a little water, in the course of a few days yields a considerable quantity of phosphate of lime to water, and that this solubility rapidly increases with the putrefaction of the gelatine.

Many years ago the late Mr. Pusey, it may be remembered, suggested that bone-dust, moistened with water and mixed with ashes, sand or porous earth, should be placed in a heap, and the heap kept moist by occasionally pouring water, stale urine or liquid manure upon it. Adopting this suggestion, practical men soon found that bones broken into rough pieces with a sledge-hammer may, by this simple means, not only be reduced to a finer state of division, but also rendered much more efficacious as a manure for root crops. Wöhler's direct experiments upon putrefying bones afford a rational explanation of the benefit arising from preparing bones in accordance with

Mr. Pusey's recommendation; and as his are the only experiments on record, I deemed it desirable to try the same experiments upon perfectly rotten bones which I had made with other forms of bone manure.

A sample of the bones used in my experiments, on analysis yielded the following results:

Composition of Rotten Bone-dust.

Moisture	12.02
Organic matter *	28.71
Phosphates of lime and magnesia (bone-earth)	49.28
Carbonate of lime and alkaline salts	8.92
Sand	1.07
	100.00

* Containing nitrogen	3.44
Equal to ammonia	4.17

These bones had a dark color, a pungent smell like rotten cheese, and imparted a deep brown color to water.

Mixed with a little water and soda lime they gave off ammonia abundantly, showing that they contained readily formed ammonia in saline combination.

Three successive solutions were prepared as before, and the amount of bone-phosphate and of nitrogen determined in each, when the following results were obtained:

Table showing the amount in grains of Bone-phosphate dissolved by one gallon of Water left in contact with rotten Bones for twenty-four hours, in the proportion of 500 *grains of Bones to one deci-gallon of Water.*

		Bone-phosphate.	Nitrogen.	Ammonia.
Rotten bone-dust	1st solution	20.30	28.70	=34.85
	2d solution	10.50	4.90	= 5.95
	3d solution	6.30	3.50	= 4.25

In comparison with all the other varieties of bone manure the rotton bones, it will be seen, yielded a very considerable proportion of phosphate of lime to cold water; thus furnishing another direct proof that bone-dust in a decomposed condition is much more efficacious and quick in acting than fresh bones.

Boiling water, I find, dissolves a still larger amount of phosphate of lime than cold, as will be seen from the following experiment, in

which rotten bones in a far advanced state of putrefaction were employed.

One hundred grains of such rotten bone-dust were boiled out with ten ounces of water; the liquid produced was filtered perfectly clear, evaporated to dryness, and the amount of phosphate in the heated residue determined as before.

The 100 grains gave 2.27 grains of soluble phosphate of lime. A gallon of bone liquid, produced in this way, consequently will contain as much as 36.32 grains of bone-phosphate. The insoluble portion of the bone was boiled out a second time with ten ounces of water. The resulting clear liquid was found to contain .49 of a grain of phosphate; or one gallon would contain 7.89 grains, showing that, with the first reduction of the ammoniacal and nitrogenous compounds, the solubility of the phosphate of lime became greatly diminished.

The rotten bone-dust used in this experiment had, in 100 parts, the following composition:

Moisture	21.55
Organic matter *	18.52
Phosphates of lime and magnesia (bone-earth)	39.24
Carbonate of lime and common salt	19.14
Sand	1.55
	100.00

* Containing nitrogen	1.82
Equal to ammonia	2.21

Ordinary bone-dust does not, or ought not, to contain more than one to one and a half per cent of alkaline salts; sometimes, however, common salt, or a strong solution of brine, is added with a twofold object in view, to increase by a cheap admixture the weight of the bone-dust; and to arrest or prevent fermentation, which readily sets up when moist bones, especially those from which most of the grease has been boiled out, and which are kept in a heap. Fermentation is always accompanied by elevation of temperature and partial destruction of all organic matter. A heap of fermenting, or more correctly speaking putrefying, bone-dust heats more or less strongly; and besides the gases arising from the destruction of organic matter, throws off a good deal of water in the shape of invisible vapor. The loss in weight sustained by keeping ordinary bone-dust in a heap for a period of three or four months, according to its condition, generally

amounts to from twelve to eighteen per cent. Salt, as is well known, acts as a check to fermentation and keeps the heap moist. In the sample of rotten bone-dust, used in the last named experiment, I found a good deal of salt, which appears to have been mixed with it for the purpose just referred to.

It may be suggested that the large amount of phosphates in the watery solution of the last sample may have been due to the presence of common salt. Direct experiments, however, have shown me that the phosphates in bones are not rendered more soluble in water by its agency. As the negative results obtained by me by digesting various forms of bone-dust with salt solutions have no special interest, I content myself, by mentioning only two or three which give as good a proof in support of the opinion just expressed as that afforded by the whole series.

Five hundred grains of fine hard bone-dust, and 200 grains of salt were mixed with one deci-gallon of water, and the phosphate dissolved by the saline liquid afterwards determined.

Under the same circumstances as those in which pure water dissolved 2.80 and 2.10 grains of bone-phosphate per gallon, salt solutions took up 2.10 and 2.40 grains of bone-phosphates respectively, or almost precisely the same quantities as pure water.

I may mention in passing, that lately a peculiar description of bone-dust has been seen occasionally in the manure market. It is imported from Belgium, and sold as prepared Belgian bones. It is very brittle, generally rather damp, emits a strong ammoniacal smell similar to that of rotten cheese, and appears to be a refuse obtained in the manufacture of gelatine or some such substance. Prepared Belgian bones, like English glue-makers' boiled or refuse bones, when dry, are readily ground into a fine powder, which, though not so valuable as fine ordinary bone-dust for manure, may nevertheless be used with advantage both for root crops and for pastures.

Three samples analysed by me a short time ago had the following composition:

Composition of three Samples of Prepared Belgian Bones.

	First.	Second.	Third.
Moisture	22.66	16.49	27.73
Organic matter*	10.12	11.40	8.81
Tribasic phosphate of lime (bone-earth)	56.94	60.84	51.32
Carbonate of lime and alkaline salts	9.49	10.05	11.16
Sand	.79	1.22	.98
	100.00	100.00	100.00

* Containing nitrogen	1.14	1.28	.86
Equal to ammonia	1.38	1.55	1.04

Sample number two is by far the best of the three, for it contains less moisture, and more nitrogenous matter and phosphates than the other samples.

A still more valuable bone preparation than the preceding may be obtained in works in which patent size is made not by boiling out the gelatine, but by dissolving the mineral portion of bones by means of cold diluted hydrochloric acid, and leaving the gelatinous tissue of bones behind.

In works wherein this plan is adopted large quantities of an acid liquid, essentially a solution of bone-phosphate in hydrochloric acid, are obtained. By adding slaked lime or carbonate of soda until the free acid is neutralized, the phosphates fall down as a white voluminous precipitate, which, after subsidence, may be collected, partially washed, and dried on a hot plate. When carefully prepared in this way, precipitated bone-phosphates constitute a very valuable fertilizing material, which is readily assimilated by plants.

A reference to experiments given in preceding pages will show that, in a precipitated state, phosphate of lime is far more easily soluble in water, and more efficacious as a manuring agent than in the shape of phosphatic minerals, bone-ash, or even fine bone-dust.

When moderate care and skill are employed in the manufacture of precipitated phosphates, an exceedingly light, dry, and very valuable white powdery substance, containing from seventy-eight to eighty per cent of pure tribasic phosphate of lime can be obtained.

Generally, however, workmen add more lime to the acid liquid than is necessary to precipitate the phosphates, and the excess of lime falls down with the precipitate and afterwards gets changed into

insoluble carbonate of lime, which remains mechanically mixed with the phosphates.

The addition of slaked lime to the acid liquid, I need hardly say, produces chloride of calcium, which remains in solution. The liquid containing this very deliquescent salt is seldom removed as perfectly as it might be from the precipitated phosphates. Prepared on a manufacturing scale the bone precipitate generally contains more carbonate of lime, with more or less chloride of calcium, moisture, and water of combination. It is sold, in commerce, as bone-flour, and varies much in composition, and consequently in value, as will be seen by glancing at the subjoined analysis:

Composition of two Samples of Bone-flour (Precipitated Bone-phosphates.)

	First.	Second.
Moisture and water of combination	30.20	22.51
Phosphoric acid*	23.83	30.50
Lime	34.52	40.65
Magnesia, chlorine, &c	9.92	6.15
Sand	1.53	.19
	100.00	100.00
* Equal to tribasic phosphate of lime (bone-earth)	52.04	66.58

In a third very inferior sample I determined separately chlorine, carbonic acid, phosphoric acid, lime, &c. Uniting the constituents found in the compound its composition may be stated as follows:

Composition of a sample of inferior Bone-flour (commercial precipitated Bone-phosphates.)

Moisture (loss at 212 deg. F.)	16.87
Organic matter and combined water	5.01
Tribasic phosphate of lime	36.28
Carbonate of lime	4.65
Chloride of calcium	31.72
Insoluble silicious matter (sand)	5.47
	100.00

Chloride of calcium is a very deliquescent salt, which is injurious to vegetation, and therefore ought not to occur in so large a proportion as it did in this sample.

An excellent artificial manure for root-crops may be obtained by mixing together three parts of prepared precipitated bone-phosphate

with three parts of Peruvian guano. Applied at the rate of four cwts. per acre, the mixture will be found especially useful for root-crops intended to be grown on light land.

Equal parts of precipitated bone-phosphate (of a good sample), Peruvian guano and common salt, and applied at the rate of eight to nine cwts. to the acre, form a capital dressing for permanent pasture.

SUMMARY.

The chief points of interest embodied in the preceding pages may be briefly summarized as follows:

1. Pure and dried phosphate of lime is sparingly soluble in water.

2. In a moist state and the voluminous condition in which it is obtained by precipitation from its solution, it is about four times as soluble in water as it is after it has been dried and heated.

3. Ammoniacal salts added to water materially increase the solubility of pure phosphate of lime, and of the phosphates in bone-ash, coprolites and other phosphatic minerals.

4. Nitrate of soda and common salt neither increase nor diminish the solubility of phosphates in water.

5. Bone-ash is not sufficiently soluble in water to be used with advantage by itself or mixed with other fertilizing matters as a manure.

6. The earthy phosphates in Peruvian and phosphatic guanos, still containing a good deal of organic matter, or salts of ammonia, are sufficiently soluble in water to be readily appropriated by plants.

7. The phosphates contained in coprolites, apatite, sombrero rock, Spanish phosphate, and other phosphatic minerals, especially when they are hard and crystalline, are very little acted upon by water.

8. For agricultural purposes, phosphatic minerals as well as bone-ash should be treated with a quantity of sulphuric acid sufficient to convert the whole of the insoluble phosphates therein contained as completely as possible into soluble combinations. It is a waste of good raw material to leave much of the insoluble phosphates unacted upon by acid.

9. Insoluble phosphates present in super-phosphate, or similar artificial manure, have little or no practical value to the farmer.

10. The different kinds of bone-dust vary much in their solubility and practical efficacy as manures.

11. Bone-dust made from solid bones, even when reduced to a fine

powder, is less soluble in water and acts more slowly on vegetation than much coarser bone-dust made from porous or spongy bones.

12. Fresh bones impregnated with grease do not readily enter into decomposition, and are less valuable as a manure than bones from which most of the fat has been removed by boiling in an open copper.

13. Fat or bone-grease has no fertilizing value whatever, and, as it retards the solution of bone-dust in water, it is decidedly an objectionable constituent of fresh bones, as far as the agriculturist is concerned.

14. Water dissolves much more phosphate of lime from rotten than from fresh bones.

15. During the putrefaction of bones, soluble nitrogenous organic compounds and ammoniacal salts are produced from the gelatine contained in bones. These compounds act powerfully and quickly as fertilizing constituents, and are indirectly useful in greatly enhancing the solubility of bone-phosphates in water.

16. Bone-dust, kept in a heap for a period of three or four months, heats and becomes more efficacious as a manure than bone-dust applied to the land fresh from the mill.

17. Ivory-dust (or bone-shavings) is frequently adulterated with gypsum, fine sand, or vegetable ivory, but when genuine is the best form in which bone can be used for the production of home-made super-phosphate.

18. High-pressure steam renders bones so brittle that they can be readily ground into a fine powder, which is readily assimilated by plants.

19. Bone-meal, prepared by high-pressure steam, contains not much less nitrogen than ordinary bone-dust, and, as a manure, is far more efficacious and valuable than the latter.

20. Placed in a heap with ashes or sand, and occasionally moistened with liquid manure or water, bone enters into putrefaction, and becomes a much more soluble and energetic manure than ordinary bone-dust.

An excellent way of rendering bone-dust soluble, it may also be mentioned, is the Norfolk plan of putting it in alternate layers between fresh farm-yard manure, and letting both ferment together in a conical heap, covered up with earth to prevent the loss of any fertilizing matter, and to secure it from penetration by heavy rains.

Laboratory, 11 Salisbury square, Fleet St, *February* 1, 1868.

ON THE CONSTRUCTION AND HEATING OF DAIRY AND CHEESE-ROOMS.

By JOSEPH HARDING.

PRIZE ESSAY.

[From the Journal of the R. A. S. of England, 1868.]

Dairy farming forms an important branch of the agricultural economy of our country, and its produce is of scarcely less moment in a commercial point of view. Cheese (of which I intend more especially to speak) is the staple commodity of some of our counties, and, as compared with the produce of other countries, occupies the first place; for though the Parmesan, the Roquefort, the Gruyere, the Port de Salut, and several other French and continental cheeses, are respectively good of the kind, they are not equal to the best English cheese for substantial character, and universal adaptation to clime and taste. The fact of our method of manufacture being imitated by many foreign cheese makers, is in itself an acknowledgment of our superior excellence.

Our improvements of late years in cheese making have been many and important. Dr. Voelcker, in his essays on "Milk and Cheese," given in Vols. 22, 23 and 24, of the Royal Agricultural Journal (which every dairy farmer should read and study), has contributed important additions to our stock of scientific knowledge, which, when practically applied, enable us more easily to convert our milk into cheese, perfect and pure in flavor.

But, with all our improvements hitherto, we have omitted the most important. Our scientific knowledge and practical skill will fail to succeed in the absence of (1), a proper dairy, in which the milk can be kept sweet; and (2), a room to ripen the cheese.

Throughout our dairy districts most of the farm houses are old, having an old-fashioned dairy-room attached, or immediately under its roof, ill-ventilated, often damp and filled with impure air, and not unfrequently in close proximity to stables, piggeries, &c. It is a mistake to deposit so pure and delicate a material as milk in such places. The amount of loss annually sustained thereby is almost

incredible; many hundred tons of cheese, being in consequence thereof made of an inferior description, are sold 1*d* to 2*d* per pound below the price which ought to be realized; whilst in hot and unfavorable seasons, such as we occasionally get, many tons fall to pieces and perish. It is not, however, to defective accommodation alone, that our large quantity of inferior cheese is due; a rather large share belongs to defective skill in the art of making cheese; which can no longer be sheltered under the old-fashioned plea "that good cheese could never be made from such pastures." Chemical researches, and unquestionable practical experience, prove that good cheese may be made from all ordinary pasture land. A remedy for defective skill will, in the absence of prejudice, be found in proper dairy accommodation and a little instruction. The farmer cannot afford to make inferior cheese from whole milk, nor should such a loss be imposed on the commonwealth. The manufacturer of wares may make goods of first and second class quality, and from the latter he may realize the largest profit, but it is not so with the farmer; the same milk from which he produces inferior cheese, would as easily and at the same expense, yield fine cheese, but with very different pecuniary results.

As soon as milk leaves the cow, the progress towards decomposition in it commences, at a rate determinable by external influences; such as a healthy or an unhealthy atmosphere. If, in our hot summer nights, milk be deposited in an unsuitable room, or come in contact with the effluvia arising from gutters or other noxious places, or if meat be hung in its vicinity, it will readily take the taint, and not, as some imagine, throw it off in the whey, but retain it in the curd to ripen with the cheese, wherein the flavor will not be mistaken.

Our best cheese is made once a day; and it is necessary that the milk should have lost its animal heat before the process of cheese-making commences. It is true this cooling may be hastened by plunging the vessel containing the milk into cold spring water; but it is far better that nature should perform her own work by reducing it to the required temperature, in a dry, clean, open, and well ventilated room during the night, when the morning's milk, possessing less animal heat, may be added to it with safety, and the rennet be at once introduced. In order to insure a *fine* cheese the milk must be perfectly sweet, that the operator may have entire control over it, and be enabled to mould the future cheese as her skill suggests. If the milk has by any means become acidified, though to so

small an extent that litmus paper fails to represent the change, it will sometimes discover itself in some stage of the process, to the surprise of the dairy-maid, and will completely baffle her skill.

It is therefore indispensable to the success of making cheese that proper accommodation should be provided, on every dairy-farm, for keeping milk sweet for at least twelve hours, or from the evening's to the morning's milking. Our fathers appear to have had but one object in view, viz., shelter from the sun's rays; but, however desirable a cool dairy may be, unless it be also thoroughly dry and sweet, milk will keep longer in a situation exposed to all the vicissitudes of the weather in a higher temperature. If it were placed in the open field there would be little doubt of its keeping sweet through one of our worst summer nights, and I question if art can much improve upon the method which nature indicates. Still, in the construction of our dairies, superfluous means of ventilation, such as gratings placed under or between the windows, should be avoided, as it is difficult to keep them air-tight in cold weather, but a sufficient number of windows properly arranged will be found advantageous.

DAIRY-ROOM.

The best position for a dairy, with cheese-room over it, is behind a dwelling-house which has a south aspect; it should not be under the same roof, but be a detached and separate building, lying longitudinally north and south, or it may be connected only on the south end with the boiler-house, having a communication with the dwelling. At the side of the boiler-house, and parallel with it, may be the scullery; this would leave the dairy buildings standing out clear of all impediments to the free circulation of pure air. All out-houses, stables, piggeries, cow-houses, &c., should be as far distant from it as possible. The dairy-room should be capacious and lofty (ten feet in height), so that when furnished it may still appear roomy. The floor, which should be raised (not inconveniently) above the level of the ground, ought to be composed of cement or some kind of concrete, so as to be free from joints or cracks. It should be made to incline from all sides to an escape drain, covered by a patent sink-trap. Thus the room would be easily washed, speedily dried, and kept sweet and wholesome.

The skirting should be of stone or tile, ten or twelve inches deep. Two or more good sized windows should be placed in either side wall, not too high above the floor, nor opposite each other, and a similar one

in the end; they should be set low, as it is the floor which chiefly needs ventilation. Instead of the sashes being fastened to the window-frames in the ordinary way, they may be made to slide back into a recess in the wall. All the windows ought to be provided with two, if not three sashes; the outer one of finely perforated zinc, the second of glass, and the inner one of canvas, to soften the rays of the sun. At intervals, around the room and near the ceiling, should be placed ventilators, which may be opened or shut at discretion, to allow accumulated steam or foul air readily to escape.

At a convenient height supports should be built into the wall round the room, upon which a shelf should be laid to prevent subsequent damage to the wall for want of the accommodation.

The staircase leading to the cheese-room will be at one end, under which should be ample and conveniently arranged cupboards with shelves, for the reception of the salt, jars containing rennet, cloths, and other things in daily use. Near this, in one of the corners, should be placed a lifting apparatus, such as may be seen at almost any warehouse, for the more easy conveyance of the cheese to the cheese-room.

The milk should by no means be brought into the dairy by the milkers; to avoid this a hole should be left in the wall nearest the milking yard; outside should be placed a tin or zinc receiver of adequate size, and connected therewith an open conduit to convey the milk to the cheese-tub within. A stream of cold water, governed by a stop cock should, if possible, be introduced into the dairy. Provision should be made for conveying the whey in pipes from the cheese-tub to a capacious cistern in the piggery. The pipes may be laid either above or beneath the floor. In thus describing the dairy-room, I have had regard especially to cheese making, but in principle it is equally adapted for butter making; the fitting up for that purpose being simply a matter of opinion and taste. For particulars upon this head, I would refer the butter maker to Dr. Voelcker's suggestions on the subject, in his "Essays on Milk" before referred to.

Cheese-Room.

In the construction of the building regard should be had to the use of non-conductors of heat in the roof, such as straw beneath the tiles, and having the tiles painted or otherwise whitened with some adhesive material. The walls should be continued a foot or two above the ceiling of the cheese-room. These precautions would do

much towards neutralizing the intensity of the summer heat. The windows should correspond both in position and structure with those of the dairy below; as the extent of space above will necessarily correspond with that of the dairy, it will be larger than required for the quantity of cheese made. The cheese room, however, should be smaller than the dairy, because the cheese will ripen better in a reasonably small compass, and the room will be more readily heated. A few feet therefore, at the most convenient end, may be advantageously partitioned off, forming a useful room for the stowing away some of the summer utensils during the winter months. The room should be about nine feet in height, with at least two ventilators either through the roof, or in the side walls, precisely the same as in the dairy; if in the side walls, they should be made air-tight, to be opened at discretion.

The room should be furnished on three sides with tiers of shelves of red deal, each shelf being one and a quarter inches thick. Of these the lowest may be eight inches from the floor, the top one eighteen inches from the ceiling; the distance between each shelf being regulated by the thickness of the cheese made. The stands or racks, on which the shelves are made to rest should be fixed in sockets on the floor, at the distance of eight inches from the skirting of the wall, and the tops fastened to the joists of the ceiling.

HEATING THE ROOMS.

It was formerly held that the introduction of heat to the dairy and cheese-room would be a very unreasonable and injurious practice, but experience has taught us that the sun's rays, and a share of his heat are the best things we can have for drying and purifying both rooms, and when these become insufficient, as they do towards the winter months of the year, we must resort to artificial means to supply their place and maintain the desired temperature. Heat is not only the agent by which the whey is effectually separated from the curd in the process of cheese making in the dairy, but without heat the cheese will not properly ripen in the cheese-room. As it is not usual to heat the dairy, large quantities of cheese are produced in the later months of the year, from which the whey has not been extracted in the process of making; the curd and whey consequently become amalgamated, ultimately forming a "pulpy" cheese, which can never ripen though submitted to any degree of temperature; such cheese often proves a source of loss to the factor, and fails to give satisfaction to the con-

sumer. The maintenance of a temperature of from 54° to 64°, during the late cheese-making season in the dairy, would very much tend to remedy the evil of "late made cheese."

The cheese-room must of necessity be heated. A Cheddar cheese, when removed from the press to the cheese-room, at three days old, contains a certain amount of moisture, but in a well made cheese this will readily evaporate in a proper temperature, and the cheese will ripen accordingly. If the temperature be low or damp, or both, the process of evaporation and ripening will be slow, and the moisture lodging in and about the rind of the cheese will cause it to be thick and white, and will damage the flavor. From observation we find that twenty cwt. of newly made cheese will give out nearly two pounds of moisture per twenty-four hours; it follows that the sooner the room is cleared of such moisture the better. When the temperature descends below 50°, evaporation should be promoted by the addition of artificial heat, so as to expel all damp and noxious vapors from the neighborhood of the cheese, thus facilitating its ripening and leaving it as clean and rich looking as though it had arrived at maturity in the summer months.

Various methods have been employed for heating the cheese-room—steam, hot air, but chiefly the stove—but all are now being superseded by hot water, which is safer and more cleanly, and diffuses the heat more equably.

In the large dairies of Somersetshire, as also in other parts of England and Scotland, Cockey's cheese-making apparatus is employed, and with this is combined the heating apparatus for the dairy and cheese-room. From a saddle-shaped boiler, fixed in the boiler-house, iron pipes are laid, to and from the cheese-tub in the dairy, conveying hot water to a chamber or false bottom beneath the tub. Pipes proceed from the same boiler to and surround the cheese-room, and descending from thence to the dairy, pass through it and return to the boiler. Thus a complete system of pipes is laid, by which the milk and whey in the cheese-tub, and also the cheese-room and dairy are heated.

A cistern containing sufficient hot water for all the purposes of the dairy servant, stands over the boiler, and the whole is heated by one fire. To heat the dairy and cheese-room, a cistern stands in one corner of the latter, half filled with water, and this supplies all the pipes down to the boiler. As the water heats, so it circulates and does its work of heating all the way round. At the top of the cistern

is a pipe communicating with the open air, and forming a means of escape for accidentally created steam.

As the water leaves the boiler it is turned in the direction required, by means of stop-cocks, and when the operation of cheese-making is completed, it is only requisite to stop one, and open another, for the heat to be transferred from the cheese-tub to the cheese-room. The pipes in the cheese-room are laid in the space between the cheese-stands and the skirting, thus throwing up the heat behind the cheese, where it is most required. With this system of heating, by a little attention, a tolerably uniform temperature of from 50° to 65° may be maintained during the winter months. It will also be found valuable, sometimes in the summer, when the atmosphere is hot and damp; if the water be set on for an hour or two, it will soon dry the room, and restore to the cheese its wonted healthiness. This is the best method of heating known to me.

CONCLUSION.

Whatever we do should be well done, therefore every description of cheese should be good of its kind. The finest can only be made from whole milk; second quality, but good of its kind, may be made from milk with half the cream removed; and even skim cheese may be also good of its kind; but there is no necessity that the cheese of whole milk should be made inferior, and consequently vary in value, as it too often does, from five shillings to six shillings per cwt.

To ensure success, every impediment should be removed, and every facility rendered. When the cheese makers of Scotland laid aside the old Dunlop method of cheese-making, and adopted the Cheddar method, they at once re-arranged their dairy and cheese-room to meet the requirements of the new system; the result is, that though they may not yet quite reach the standard of excellence of our best Somerset cheese, yet they surpass us in the uniformity of quality.

The Americans, who are also adopting the Cheddar system, spare no expense in providing every necessary convenience, erecting suitable factories * and cheese-rooms, and obtaining scientific and practical information from every available source. Mr. X. A. Willard, M. A., who paid a visit to the cheese-making districts of England during the summer of 1866, in his official report delivered before the American Dairymen's Association in the city of Utica, after speaking in the most laudatory terms of our dairy management and cleanli-

* See note, page 273.

ness, says: "*As regards appliances for producing cheese, we are greatly in advance of the English.*"

Strange indeed, that so important a matter as our dairy accommodations should be overlooked or neglected, seeing that the rent of the landlord and the income of the farmer are to be derived from it!

In the description of the dairy and cheese-room here given, I have had especial reference to the method employed in making Cheddar cheese, as being the most scientific, yet simple, involving the least possible labor, whilst the cheese is quoted the highest of any English cheese in the London and other markets; but the arrangement of the dairy and cheese-room above described, is equally suited to all dairy purposes; it is inexpensive and simple, yet all that is required, enabling the best cheese-maker to produce a uniform dairy of cheese, and saving him from the mortification and loss now often inevitable.

The unskillful maker would be also benefited by having proper appliances for making good cheese. In such a dairy of thirty feet in length, and eighteen to twenty feet in width, the evening milk of fifty cows may be deposited in the cheese-tub, and will keep sweet till the morning, as nature requires no other assistance than a dry room and thorough cleanliness. Another great advantage, is that it obviates the necessity of Sabbath cheese-making, which is everywhere felt to be so objectionable. If our dairy farms were thus furnished, the country would derive the benefit of having a larger quantity of fine cheese, and consequently less of the inferior article.

Marksbury, near Bristol.

Note.—Reference has been made in the foregoing essay to the introduction of cheese-factories, and the Cheddar system of cheese-making, into the United States of America. To these causes may, doubtless, be attributed the great improvement latterly observable in the best made American cheese, which now finds a ready sale at high prices among the most fastidious consumers in England. On these points much information has been diffused by means of the annual reports of the American Dairymen's Association, an institution having for its aim "mutual improvement in the science of cheese-making, and more efficient action in promoting the general interest of the dairy community." From the reports of this association, and information derived from official sources, it appears that whereas the factory system only took root in the United States in the year 1851, and so recently as 1860 had only ramified into seventeen branches, there are at the present time in active operation not less than 1,000 cheese-factories, working up the milk of nearly a quarter of a million of cows; and from many of them very excellent cheese of uniform quality is periodically turned out. How the idea of these factories in the first instance originated there are no means of determining; but it is a suggestive fact, as stated by Mr. Willard in a recent address to the members of the Dairymen's Association

assembled at Utica, that about a century ago the farmers of the romantic village of Cheddar, at the foot of the Mendip hills in Somersetshire, united the milk of their cows for the purpose of making a large cheese; this they did alternately at each others houses, and from that time to the present, the best thick cheese of Somerset has borne the name of Cheddar. To this joint-stock method of production may probably be traced the germ of the American factory system; and it is not a little remarkable that Mr. Willard, after having seen all the different styles of cheese of Great Britain, does not hesitate to express his opinion, "that the Cheddar is the only process from which the American dairymen can obtain suggestions of much practical utility." * He describes the cheese as an article of very high standard, deserving of all the encomia, from time to time conferred on it, and attributes its pure and delicious flavor to the scrupulous care and cleanliness with which all the operations from first to last are carried out in well conducted dairies. On this point, the following remarks by Mr. Willard are equally instructive and interesting, and all the more so, because he does not hesitate to expose and denounce many objectionable features in ill-placed and badly regulated factories.

"The English dairyman has a cleaner and better flavored milk than generally obtained with us. The milking is performed with great nicety in tin pails. At Mr. Harding's, the milkers are not allowed to enter the milk-room; the pails being emptied into a conductor at the window. The milk-rooms are perfect models of neatness; they have stone floors, and the joints of the flagging are cemented together, so that no slops or decomposed milk can have an entrance. They are situated in a cool, airy place, and the walls are of stone or of hollow brick, thus rendering them cool and of an even temperature. Every part is well ventilated, and out of the reach of disagreeable or fœtid odors. The floor, the utensils, and cheese apparatus are kept as sweet and clean as the table and crockery of the most fastidious housewife.

"This condition of things I found universal wherever I went among the dairymen; at the royal dairy near the queen's palace at Windsor Castle, and radiating from thence to all parts of England. Nothing connected with cheese-making abroad struck me with more force and admiration than this perfect neatness, and cleanliness of the dairy. In this respect they are greatly in advance of us; and in my opinion it is one of the chief reasons why they are able to obtain that fine, clean flavor, which is a distinguished characteristic of their choice cheese.

"There is nothing, perhaps, which indicates the progress and skill of our American manufacturers more than the fact, that they are able to take nasty milk from the hands of patrons, manipulate it among the fœtid odors of whey-slops, decomposed milk, and pig-sty emanations, and yet turn out a cheese that will compete with the great bulk of English make. But these conditions will not, and *cannot* produce the fine, delicate flavor of the best Cheddar; and it is one reason why there is such a great bulk of American cheese condemned abroad as 'not just right in flavor.' This putrid inoculation does not show its whole character at first, but, like an insidious poison in the blood, increases from week to week, until it puts on a distinctive feature which spoils all the good materials with which it comes in contact.

"I saw American cheese abroad, perfect in shape and color, rich in quality, splendidly manufactured, and having a bright handsome appearance that would have placed it on an equality with the best in the world; but the trier showed a flavor that could be plainly traced to a bad or imperfect condition of the milk before manipula-

* Third Annual Report of the American Dairymen's Association (1867), page 39.

tion. I have been extremely mortified while testing cheese abroad to catch the taste and smell of putrid rennet, and of the stables."

It would be impossible in the limits of a note to discuss the question as to how far the factory system is adapted to the habits and requirements of the British dairy farmer, more especially in these days of self-reliance and private enterprise, two qualities which cannot be sufficiently commended and encouraged; but the following quotations derived from the trade circular of Messrs. Morrell & Co., of Liverpool, issued on the 18th of July, in the present year, show that whatever defects of management may exist in some of the American factories, the average price of factory-made cheese greatly exceeds that of the produce of farm dairies.

Factories.

	Per cwt.
Fine factory	56*s* @ 58*s*.
Very good factory	53*s* @ 56*s*.
Good factory	44*s* @ 48*s*.
Medium	40*s* @ 43*s*.

Farm Dairies.

	Per cwt.
Very good	44*s* @ 48*s*.
Good	40*s* @ 43*s*.
Medium	36*s* @ 40*s*.
Ordinary	26*s* @ 33*s*.

Ed.

ON THE CAUSES OF THE BENEFITS OF CLOVER AS A PREPARATORY CROP FOR WHEAT.

By Dr. Augustus Voelcker.

[From the Journal of the R. A. S. of England, 1868.]

Agricultural chemists inform us, that in order to maintain the productive powers of the land unimpaired, we must restore to it the phosphoric acid, potash, nitrogen, and other substances, which enter into the composition of our farm crops; the constant removal of organic and inorganic soil constituents by the crops usually sold off the farm, leading, as is well known, to more or less rapid deterioration and gradual exhaustion of the land. Even the best wheat soils of this and other countries become more and more impoverished, and sustain a loss of wheat yielding power, when corn crops are grown in too rapid succession without manure. Hence, the universal practice of manuring, and that also of consuming oil-cake, corn, and similar purchased food on land naturally poor, or partially exhausted by previous cropping.

Whilst, however, it holds good as a general rule, that no soil can be cropped for any length of time without gradually becoming more and more infertile, if no manure be applied to it, or if the fertilizing elements removed by the crops grown thereon, be not by some means or other restored, it is, nevertheless, a fact that after a heavy crop of clover carried off as hay, the land, far from being less fertile than before, is peculiarly well adapted, even without the addition of manure, to bear a good crop of wheat in the following year, provided the season be favorable to its growth. This fact, indeed, is so well known that many farmers justly regard the growth of clover as one of the best preparatory operations, which the land can undergo in order to its producing an abundant crop of wheat in the following year. It has further been noticed that clover mown twice leaves the land in a better condition, as regards its wheat producing capabilities, than when mown once only for hay, and the second crop fed off on the land by sheep; for, notwithstanding, that in the latter instance the fertilizing elements in the clover crop are in part restored in the sheep

excrements, yet, contrary to expectation, this partial restoration of the elements of fertility to the land has not the effect of producing more or better wheat in the following year, than is reaped on land from off which the whole clover crop has been carried, and to which no manure whatever has been applied.

Again, in the opinion of several good, practical agriculturists, with whom I have conversed on the subject, land whereon clover has been grown for seed in the preceding year, yields a better crop of wheat than it does when the clover is mown twice for hay, or even only once, and afterwards fed off by sheep. Most crops left for seed, I need hardly observe, exhaust the land far more than they do when they are cut down at an earlier stage of their growth; hence the binding clauses in most farm leases, which compel the tenant not to grow corn crops more frequently, nor to a greater extent than stipulated. However, in the case of clover grown for seed we have, according to the testimony of trustworthy witnesses, an exception to a law generally applicable to most other crops.

Whatever may be the true explanation of the apparent anomalies connected with the growth and chemical history of the clover plant, the facts just mentioned having been noticed not once or twice only, or by a solitary observer, but repeatedly, and by numbers of intelligent farmers, are certainly entitled to credit; and little wisdom, as it strikes me, is displayed by calling them into question, because they happen to contradict the prevailing theory, according to which a soil is said to become more or less impoverished in proportion to the large or small amount of organic and mineral soil constituents carried off in the produce.

Agricultural experiences contradicting prevailing, and it may be, generally current theories, are, unless I am much mistaken, of far more common occurrence than may be known to those who are either naturally unobservant or unacquainted with many of the details of farming operations. Indeed, an interesting and instructive treatise might be written on the apparent anomalies in agriculture, and a collection of trustworthy facts of the kind alluded to would afford valuable hints to intelligent farmers, and suggest matter for inquiry to chemists and others engaged in scientific pursuits.

To me it seems inconsistent with the exercise of common sense, and opposed alike to the whole tenor of a well regulated mind and the progress of scientific agriculture, to discuss agricultural matters in the dogmatic spirit too often so painfully observable when people

meet together for the discussion of subjects relating to farm practice; but still more painful is the spirit which pervades the writings of certain scientific men who are bold enough, from isolated, or even a number of analogous facts, to frame general and invariable laws, in accordance with which they propose to regulate the profession of agriculture. That there are certain fixed laws which determine the growth of the meanest herb and the mightiest forest tree, no one can gainsay, but it may well be doubted whether our corn or forage crops would remain as flourishing as they at present are, if, in deference to some pretty theory, the farmers of England suddenly threw aside their past experience, and endeavored to grow corn in accordance with a mathematical formula which men may fancy they have discovered, and by which they may suppose the development of our corn crops to be governed. Even great men, by taking too general, or as it is often erringly termed, a comprehensive view of agricultural matters, sometimes totally misrepresent the very law they are endeavoring to establish.

The patient investigation of many of the details, with which those only are perfectly familiar whose daily occupation is in the field or in the feeding-stall, is, however, often rewarded by success. Mysteries which puzzle the minds of intelligent farmers are cleared up, the influences which modify a general rule or practice in farming operations are clearly recognized, and by degrees principles are established, which, assigning the benefits or disadvantages of a certain course of proceeding to their real cause, must ever tend to confirm the experienced in good practice, and afford valuable hints in guiding those inexperienced in farm management.

In the course of a long residence in a purely agricultural district, I have often been struck with the remarkably healthy appearance and good yield of wheat on land from which a heavy crop of clover hay was obtained in the preceding year. I have likewise had frequent oportunities of observing that, as a rule, wheat grown on part of a field whereon clover has been twice mown for hay, is better than the produce of that on the part of the same field on which the clover has been mown only once for hay, and afterwards fed off by sheep. These observations, extending over a number of years, led me to inquire into the reasons why clover is specially well fitted to prepare land for wheat; and in the paper, which I have now the pleasure of laying before the readers of the Journal, I shall endeavor, as the result of my experiments on the subject, to give an intelligible explanation of the fact,

that clover is so excellent a preparatory crop for wheat, as it is practically known to be.

By those taking a superficial view of the subject, it may be suggested that any injury likely to be caused by the removal of a certain amount of fertilizing matter is altogether insignificant, and more than compensated for, by the benefit which results from the abundant growth of clover roots and the physical improvement in the soil, which takes place in their decomposition. Looking, however, more closely into the matter, it will be found that in a good crop of clover hay a very considerable amount of both mineral and organic substances is carried off the land, and that if the total amount of such constituents in a crop had to be regarded exclusively as the measure for determining the relative degrees in which different farm crops exhaust the land, clover would have to be described as about the most exhausting crop in the entire rotation.

Clover hay on an average and in round numbers contains in 100 parts:

Water	17.0
Nitrogenous substances (flesh forming matters)*	15.6
Non-nitrogenous compounds	59.9
Mineral matter (ash)	7.5
	100.0

* Containing nitrogen 2.5

The mineral portion or ash in 100 parts of clover hay consists of:

Phosphoric acid	7.5
Sulphuric acid	4.3
Carbonic acid	18.0
Silica	3.0
Lime	30.0
Magnesia	8.5
Potash	20.0
Soda, chloride of sodium, oxide of iron, sand, loss, &c.	8.7
	100.0

Let us suppose the land to have yielded four tons of clover hay per acre. According to the preceding data we find that such a crop includes 224 pounds of nitrogen, equal to 272 pounds of ammonia, and 672 pounds of mineral matter or ash constituents.

In 672 pounds of clover ash we find:

Phosphoric acid	51½	lbs.
Sulphuric acid	29	"
Carbonic acid	121	"
Silica	20	"
Lime	201	"
Magnesia	57	"
Potash	134½	"
Soda, chloride of sodium, oxide of iron, sand, &c	58	"
	672	lbs.

Four tons of clover hay, the produce of one acre, thus contain a large amount of nitrogen, and remove from the soil an enormous quantity of mineral matters, abounding in lime and potash, and containing also a good deal of phosphoric acid.

Leaving for a moment the question untouched, whether the nitrogen contained in the clover is derived from the soil or from the atmosphere, or partly from the one and partly from the other, no question can arise as to the original source from which the mineral matters in the clover produce are derived. In relation therefore, to the ash-constituents, clover must be regarded as one of the most exhausting crops usually cultivated in this country. This appears strikingly to be the case when we compare the preceding figures with the quantity of mineral matters which an average crop of wheat removes from an acre of land.

The grain and straw of wheat contain in round numbers in 100 parts:

	Grain of wheat.	Straw.
Water	15.0	16.0
Nitrogenous substances (flesh-forming matters)*	11.1	4.0
Non-nitrogenous substances	72.2	74.9
Mineral matter (ash)	1.7	5.1
	100.0	100.0
*Containing nitrogen	1.78	.64

The ash of wheat contains in 100 parts:

	Grain.	Straw.
Phosphoric acid	50.0	5.0
Sulphuric acid	0.5	2.7
Carbonic acid		
Silica	2.5	67.0
Lime	3.5	5.5
Magnesia	11.5	2.0

	Grain.	Straw.
Potash	30.0	13.0
Soda, chloride of sodium, oxide of iron, sand, &c.	2.0	4.8
Total	100.0	100.0

The mean produce of wheat per acre may be estimated at 25 bushels, which, at 60 pounds per bushel, gives 1,500 pounds; and as the weight of the straw is generally twice that of the grain, its produce will be 3,000 pounds. According, therefore, to the preceding data there will be carried away from the soil:

In 1,500 pounds of the grain	25	pounds of mineral food (in round numbers).
In 3,000 pounds of the straw	150	pounds of mineral food (in round numbers).
Total	175	pounds.

On the average of the analyses, it will be found that the composition of these 175 pounds is as follows:

	In the grain.	In the straw.	Total.
Phosphoric acid	12.5 lbs.	7.5 lbs.	20.0 lbs.
Sulphuric acid	0.1 "	4.0 "	4.1 "
Carbonic acid			
Silica	0.6 "	100.5 "	101.1 "
Lime	0.9 "	8.2 "	9.1 "
Magnesia	2.9 "	3.0 "	5.9 "
Potash	7.5 "	19.5 "	27.0 "
Soda, chloride of sodium, oxide of iron, sand, &c	0.5 "	7.3 "	7.8 "
	25. lbs.	150. lbs.	175. lbs.

The total quantity of ash constituents carried off the land in an average crop of wheat, thus amounts to only 175 pounds per acre, whilst a good crop of clover removes as much as 672 pounds.

Nearly two-thirds of the total amount of mineral in the grain and straw of one acre of wheat consists of silica, of which there is an ample supply in almost every soil. The restoration of silica, therefore, need not trouble us in any way, especially as there is not a single instance on record proving that silica, even in a soluble condition, has ever been applied to land with the slightest advantage to corn or grass crops, which are rich in silica, and which for this reason, may be assumed to be particularly grateful for a supply of it in a soluble state. Silica, indeed, if at all capable of producing a beneficial effect, ought to be useful to these crops, either by strengthening the straw or

stems of graminaceous plants, or otherwise benefiting them; but after deducting the amount of silica from the total amount of mineral matters in the wheat produced from one acre, only a trifling quantity of other and more valuable fertilizing ash constituents of plants will be left. On comparing the relative amounts of phosphoric acid and potash in an average crop of wheat and a good crop of clover hay, it will be seen that one acre of clover hay contains as much phosphoric acid as two and one-half acres of wheat, and as much potash as the produce from five acres of the same crop. Clover thus unquestionably removes from the land very much more mineral matter than does wheat; wheat carries off the land at least three times as much of the more valuable mineral constituents as abstracted by the clover. Wheat, notwithstanding, succeeds remarkably well after clover.

Four tons of clover hay, or the produce of an acre, contains, as already stated, 224 lbs. of nitrogen, or calculated as ammonia, 272 lbs.

Assuming the grain of wheat to furnish 1.78 per cent of nitrogen, and wheat straw .64 per cent, and assuming also that 1,500 lbs. of corn and 3,000 lbs. of straw represent the average produce per acre, there will be in the grain of wheat per acre 26.7 lbs. of nitrogen, and in the straw 19.2 lbs., or in both together 46 lbs. of nitrogen; in round numbers, equal to about 55 lbs. of ammonia, which is only about one-fifth the quantity of nitrogen in the produce of an acre of clover. Wheat, it is well known, is specially benefited by the application of nitrogenous manures, and as clover carries off so large a quantity of nitrogen, it is natural to expect the yield of wheat after clover to fall short of what the land might be presumed to produce without manure before a crop of clover was taken from it. Experience, however, has proved the fallacy of this presumption, for the result is exactly the opposite, inasmuch as a better and heavier crop of wheat is produced than without the intercalation of clover. What, it may be asked, is the explanation of this apparent anomaly?

In taking up this inquiry, I was led to pass in review the celebrated and highly important experiments, undertaken by Mr. Lawes and Dr. Gilbert, on the continued growth of wheat on the same soil, for a long succession of years, and to examine, likewise carefully, many points, to which attention is drawn, by the same authors in their memoirs on the growth of red clover by different manures, and on the Lois Weedon plan of growing wheat. Abundant and most convincing evidence is supplied by these indefatigable experimenters, that the wheat producing powers of a soil are not increased in any sensible

degree by the liberal supply of all the mineral matters, which enter into the decomposition of the ash of wheat, and that the abstraction of these mineral matters from the soil, in any much larger proportions than possibly can take place under ordinary cultivation, in no wise affects the yield of wheat, provided there be at the same time a liberal supply of available nitrogen within the soil itself. The amount of the latter, therefore, is regarded by Messrs. Lawes and Gilbert, as the measure of the increased produce of grain, which a soil furnishes.

In conformity with these views, the farmer, when he wishes to increase the yield of his wheat, finds it to his advantage, to have recourse to ammoniacal, or other nitrogenous manures, and depends, more or less entirely upon the soil for the supply of the necessary mineral or ash constituents of wheat, having found such a supply to be amply sufficient for his requirements. As far, therefore, as the removal from the soil of a large amount of mineral soil constituents, by the clover crop is concerned, the fact viewed in the light of the Rothamsted experiments, becomes at once intelligible; for, notwithstanding, the abstraction of over 600 lbs. of mineral matter by a crop of clover, the succeeding wheat crop does not suffer. Inasmuch, however, as we have seen, that not only much mineral matter is carried off the land in a crop of clover, but also much nitrogen, we might, in the absence of direct evidence to the contrary, be led to suspect that wheat after clover would not be a good crop; whereas, the fact is exactly the reverse.

It is worthy of notice that nitrogenous manures which have such a marked and beneficial effect upon wheat do no good, but in certain combinations, in some seasons, do positive harm to clover. Thus, Messrs. Lawes and Gilbert, in a series of experiments on the growth of red clover by different manures, obtained fourteen tons of fresh green produce, equal to about three and three-fourths tons of clover hay from the unmanured portion of the experimental field; and where sulphates of potash, soda, and magnesia, or sulphate of potash and super-phosphate of lime were employed, seventeen to eighteen tons (equal to from about four and one-half to nearly five tons of hay) were obtained. When salts of ammonia were added to the mineral manures, the produce of clover hay was, upon the whole, less than where the mineral manures were used alone. The wheat grown after the clover on the unmanured plot gave, however, twenty-nine and a half bushels of corn, whilst in the adjoining field, where wheat was grown after wheat without manure, only fifteen and a half bushels of corn per

acre were obtained. Messrs. Lawes and Gilbert notice especially that in the clover crop of the preceding year, very much larger quantities, both of mineral matters and of nitrogen, were taken from the land than were removed in the unmanured wheat crop in the same year, in the adjoining field. Nothwithstanding this, the soil from which the clover had been taken was in a condition to yield fourteen bushels more wheat per acre than that upon which wheat had been previously grown; the yield of wheat after clover, in these experiments, being fully equal to that in another field where very large quantities of manure were used.

Taking all these circumstances into account, is there not presumptive evidence that notwithstanding the removal of a large amount of nitrogen in the clover hay, an abundant store of available nitrogen is left in the soil, and also that in its relations towards nitrogen in the soil, clover differs essentially from wheat? The results of our experience in the growth of the two crops appear to indicate that, whereas the growth of the wheat rapidly exhausts the land of its available nitrogen, that of clover, on the contrary, tends somehow or other to accumulate nitrogen within the soil itself. If this can be shown to be the case, an intelligible explanation of the fact that clover is so useful as a preparatory crop for wheat, will be found in the circumstance that during the growth of clover, nitrogenous food, for which wheat is particularly grateful, is either stored up or rendered available in the soil.

An explanation, however plausible, can hardly be accepted as correct if based mainly on data which, although highly probable, are not proved to be based on fact. In chemical inquiries especially, nothing must be taken for granted that has not been proved by direct experiment. The following questions naturally suggest themselves in reference to this subject: What is the amount of nitrogen in soils of different characters? What is the amount more particularly after a good and after an indifferent crop of clover? Why is the amount of nitrogen in soils larger after clover than after wheat and other crops? Is the nitrogen present in a condition in which it is available and useful to wheat? And lastly, are there any other circumstances, apart from the supply of nitrogenous matter in the soil, which help to account for the beneficial effects of clover as a preparatory crop for wheat?

In order to throw some light on these questions, and, if possible, to give distinct answers to, at least some of them, I, years ago, when

residing at Cirencester, began a series of experiments; and more recently I have been fortunate enough to obtain the co-operation of Mr. Robert Valentine, of Leighton Buzzard, who kindly undertook to supply me with materials for my analysis.

My first experiments were made on a thin, calcareous, clay soil, resting on oolitic limestone, and producing generally a fair crop of red clover. The clover field formed the slope of a rather steep hillock, and varied much in depth. At the top of the hill, the soil became very stony at a depth of four inches, so that it could only with difficulty be excavated to a depth of six inches, when the bare limestone rock made its appearance. At the bottom of the field the soil was much deeper, and the clover stronger, than at the upper part. On the brow of the hill, where the clover appeared to be strong, a square yard was measured out; and, at a little distance off, where the clover was very bad, a second square yard was measured; in both plots the soil being taken up to a depth of six inches. The soil, where the clover was good, may be distinguished from the other, by being marked as No. 1, and that where it was bad, as No. 2.

Clover-Soil No. 1 (Good Clover).

The roots having first been shaken out to free them as much as possible from soil, were then washed once or twice with cold distilled water, and, after having been dried for a little while in the sun, were weighed, when the square yard produced 1 lb. 10½ oz. of cleaned clover roots in an air-dry state; an acre of land, or 4,840 square yards, accordingly yielded, in a depth of six inches, 3.44 tons, or 3½ tons in round numbers, of clover roots.

Fully dried in a water bath, the roots were found to contain altogether 44.67 per cent of water, and on being burnt in a platinum capsule, yielded 6.089 of ash. A portion of the dried, finely powdered and well mixed roots was burned with soda lime, in a combustion tube, and the nitrogen contained in the roots otherwise determined in the usual way. Accordingly, the following is the general composition of the roots from the soil No. 1:

Water	44.675
Organic matter *	49.236
Mineral matter	6.089
	100.000

* Containing nitrogen	1.297
Equal to ammonia	1.575

Assuming the whole field to have produced 3½ tons of clover roots per acre, there will be 99.636 lbs., or in round numbers, 100 lbs. of nitrogen in the clover roots from one acre; or, about twice as much nitrogen as is present in the average produce of an acre of wheat.

The soil which had been separated from the roots was passed through a sieve to deprive it of any stones it might contain. It was then partially dried, and the nitrogen in it determined in the usual manner, by combustion with soda-lime, when it yielded .313 per cent of nitrogen, equal to .38 of ammonia, in one combustion; and .373 per cent of nitrogen, equal to .46 of ammonia, in a second determination.

That the reader may have some idea of the character of this soil, it may be stated that it was further submitted to a general analysis, according to which it was found to have the following composition:

General Composition of Soil, No. 1 (Good Clover).

Moisture	18.73
Organic matter*	9.72
Oxide of iron and alumina	13.24
Carbonate of lime	8.82
Magnesia, alkalies, &c	1.72
Insoluble silicious matter (chiefly clay)	47.77
	100.00

* Containing nitrogen	.313
Equal to ammonia	.380

The second square yard from the brow of the soil where the clover was bad produced thirteen ounces of air-dry and partially clean roots, or 1.75 tons per acre. On analysis they were found to have the following composition:

Clover-roots, No. 2 (Bad Clover).

Water	55.732
Organic matter*	39.408
Mineral matter (ash)	4.860
	100.000

* Containing nitrogen	.792
Equal to ammonia	.901

The roots on the spot where the clover was very bad yielded only thirty-one pounds of nitrogen per acre, or scarcely one-third of the quantity which was obtained from the roots where the clover was good.

The soil from the second square yard on analysis was found, when freed from stones by sifting, to contain in 100 parts:

Composition of Soil, No. 2 (Bad Clover).

Water	17.24
Organic matter*	9.64
Oxide of iron and alumina	11.89
Carbonate of lime	14.50
Magnesia, alkalies, &c	1.53
Insoluble silicious matter	45.20
	100.00

		2d determination.
* Containing nitrogen	.306	.380
Equal to ammonia	.370	.470

Both portions of the clover soil thus contained about the same percentage of organic matter, and yielded nearly the same amount of nitrogen.

In addition, however, to the nitrogen in the clover roots, a good deal of nitrogen, in the shape of root-fibres, decayed leaves, and similar organic matters, was disseminated throughout the fine soil in which it occurred, and from which it could not be separated; but unfortunately I neglected to weigh the soil from a square yard, and am, therefore, unable to state how much nitrogen per acre was present in the shape of small root-fibres and other organic matters. Approximately, the quantity might be obtained by calculation; but, as the actual weight of cultivated soil varies greatly, I abstain from making such a calculation, even though it might be done with propriety, as I took care in the following season to weigh the soil of different parts of the same field.

Before mentioning the details of the experiments made in the next season, I will here give the composition of the ash of the partially cleaned clover roots:

Composition of ash of Clover roots (partially cleaned).

Oxide of iron and alumina	11.73
Lime	18.49
Magnesia	3.03
Potash	6.88
Soda	1.93
Phosphoric acid	3.61
Sulphuric acid	2.24
Soluble silica	19.01
Insoluble silicious matter	24.83
Carbonic acid, chlorine, and loss	8.25
	100.00

This ash was obtained from clover roots, which yielded when perfectly dry, in round numbers, eight per cent of ash. Clover roots washed quite clean, and separated from all soil, yield about five per cent of ash; but it is extremely difficult to clean a large quantity of fibrous roots from all dirt, and the preceding analysis distinctly shows that the ash of the clover roots analyzed by me was mechanically mixed with a good deal of fine soil, for oxide of iron and alumina and insoluble silicious matter in any quantity are not normal constituents of plant ashes. Making allowance for soil contamination, the ash of clover roots, it will be noticed, contains much lime and potash, as well as an appreciable amount of phosphoric and sulphuric acid. On the decay of the clover roots, these and other mineral fertilizing matters are left in the surface soil in a readily available condition, and in considerable proportions when the clover stands well. Although a crop of clover removes much mineral matter from the soil, it must be borne in mind that its roots extract from the land soluble mineral fertilizing matters, which, on the decay of the roots, remain in the land in a prepared and more readily available form than that in which they originally occur. The benefits arising to wheat from the growth of clover may thus be due partly to this preparation and concentration of mineral food in the surface soil.

The clover on the hillside field, on the whole, turned out a very good crop; and as the plant stood the winter well, and this field was left another season in clover without being plowed up, I availed myself of the opportunity of making, during the following season, a number of experiments similar to those of the preceding year. This time, however, I selected for examination a square yard of soil from a spot on the brow of the hill where the clover was thin, and the soil itself stony at a depth of four inches; and another plot of one square yard at the bottom of the hill, from a place where the clover was stronger than that on the brow of the hill, and the soil at a depth of six inches contained no large stones.

SOIL NO. 1 (CLOVER THIN), ON THE BROW OF THE HILL.

The roots in a square yard, six inches deep, when picked out by hand and cleaned as much as possible, weighed, in their natural state, 2 lbs. 11 oz.; and when dried on the top of a water-bath, for the purpose of getting them brittle and fit for reduction into fine powder, 1 lb. 12 oz. 31 grains. In this state they were submitted as before to analysis, when they yielded in 100 parts:

Composition of Clover Roots, No. 1 (*from brow of the hill.*)

Moisture	4.34
Organic matter *	26.53
Mineral matter	69.13
	100.00

* Containing nitrogen	.816
Equal to ammonia	.991

According to these data an acre of land will yield three tons twelve cwts. of nearly dry clover roots, and in this quantity there will be about sixty-six pounds of nitrogen. The whole of the soil from which the roots had been picked out was passed through a half inch sieve. The stones left in the sieve weighed 141 pounds; the soil which passed through weighing 218 pounds.

The soil was next dried by artificial heat, when the 218 pounds became reduced to 185.487 pounds.

In this partially dried state it contained:

Moisture	4.21
Organic matter*	9.78
Mineral matter†	86.01
	100.00

* Containing nitrogen	.391
Equal to ammonia	.475
† Including phosphoric acid	.264

I also determined the phosphoric acid in the ash of the clover roots. Calculated for the roots in a nearly dry state, the phosphoric acid amounts to .287 per cent.

An acre of soil, according to the data furnished by the six inches on the spot where the clover was thin, produced the following quantity of nitrogen:

	Ton.	Cwts.	Lbs.
In the fine soil	1	11	33
In the clover roots	0	0	66
Total quantity of nitrogen per acre	1	11	99

The organic matter in an acre of this soil, which cannot be picked out by hand, it will be seen, contains an enormous quantity of nitrogen; and although, probably, the greater part of the roots and other remains from the clover crop may not be decomposed so thoroughly

as to yield nitrogenous food to the succeeding wheat crop, it can scarcely be doubted that a considerable quantity of nitrogen will become available by the time the wheat is sown, and that one of the chief reasons why clover benefits the succeeding wheat crop is to be found in the abundant supply of available nitrogenous food furnished by the decaying clover roots and leaves.

Clover Soil No. 2, from the bottom of the Hill (Good Clover).

A square yard of the soil from the bottom of the hill, where the clover was stronger than on the brow of the hill, produced 2 lbs. 8 oz. of fresh clover roots; or 1 lb. 11 oz. 47 grains of partially dried roots; 61 lbs. 9 oz. of limestones, and 239.96 lbs. of nearly dry soil.

The partially dried roots contained:

Moisture	5.06
Organic matter*	31.94
Mineral matter	63.00
	100.00

* Containing nitrogen ..... .804

An acre of this soil, six inches deep, produced 3 tons, 7 cwts. 65 lbs. of clover roots, containing 61 lbs. of nitrogen; that is, there was very nearly the same quantity of roots and nitrogen in them as that furnished in the soil from the brow of the hill.

The roots, moreover, yielded .365 per cent of phosphoric acid; or, calculated per acre, 27 lbs.

In the partially dried soil I found:

Moisture	4.70
Organic matter*	10.87
Mineral matter†	84.43
	100.00

* Containing nitrogen ..... .405
Equal to ammonia ..... .491
† Including phosphoric acid ..... .321

According to these determinations an acre of the soil from the bottom of the hill contains:

	Tons.	Cwts.	Lbs.
Nitrogen in the organic matter of the soil	2	2	0
Nitrogen in clover roots of the soil	0	0	61
Total amount of nitrogen per acre	2	2	61

Compared with the amount of nitrogen in the soil from the brow of the hill, about 11 cwt. more nitrogen was obtained in the soil and roots from the bottom of the hill, where the clover was more luxuriant.

The increased amount of nitrogen occurred in fine root-fibres and other organic matters of the soil, and not in the coarser bits of roots which were picked out by the hand. It may be assumed that the finer particles of organic matter are more readily decomposed than the coarser roots; and as there was a larger amount of nitrogen in this than in the preceding soil, it may be expected that the land at the bottom of the hill, after removal of the clover, was in a better agricultural condition for wheat than that on the brow of the hill.

Experiments on Clover—Soils from Burcott Lodge Farm, Leighton Buzzard.

The soils for the next experiments were kindly supplied to me in 1866, by Mr. Robert Valentine, of Burcott Lodge, who also sent me some notes respecting the growth and yield of clover hay and seed on this soil.

Foreign seed, at the rate of 12 lbs. per acre, was sown with a crop of wheat, which yielded 5 quarters per acre the previous year.

The first crop of clover was cut down on the 25th of June, 1866, and carried on June 30th. The weather was very warm, from the time of cutting till the clover was carted, the thermometer standing at 80° Fahr. every day. The clover was turned in the swathe, on the second day after it was cut; on the fourth day it was turned over and put into small heaps of about 10 lbs. each; and on the fifth day these were collected into larger cocks and then stacked.

The best part of an 11 acre field produced nearly 3 tons of clover hay, sun-dried, per acre; the whole field yielding on an average 2½ tons per acre. This result was obtained by weighing the stack three months after the clover was carted. The second crop was cut on the 21st of August, and carried on the 27th, the weight being nearly 30 cwt. of hay per acre. Thus the two cuttings produced just about 4 tons of clover hay per acre.

The 11 acres were divided into two parts. About one-half was mown for hay a second time, and the other part left for seed. The produce of the second half of the 11 acre field was cut on the 8th of October, and carried on the 10th. It yielded in round numbers, 3 cwt. of clover seed per acre, the season being very unfavorable for clover seed. The second crop of clover mown for hay was rather too ripe, and just beginning to show seed.

A square foot of soil, 18 inches deep, was dug from the second portion of the land which produced the clover hay and clover seed.

Soil from part of 11 *acre Field twice mown for Hay.*

The upper 6 inches of soil, 1 foot square, contained all the main roots of 18 strong plants; the next 6 inches only small root fibres, and in the third section, a 6 inch slice cut down at a depth of 12 inches from the surface, no distinct fibres could be found. The soil was almost completely saturated with rain when it was dug up on the 13th September, 1866:

	Pounds.
The upper 6 inches of soil, 1 foot square weighed	60
The second " " "	61
The third " " "	63

These three portions of one foot of soil, 18 inches deep, were dried nearly completely, and weighed again; when the first 6 inches weighed 51¼ lbs.; the second 6 inches, 51 lbs. 5 oz.; and the third section, 54 lbs. 2 oz.

The first 6 inches contained 3 lbs. of silicious stones (flints), which were rejected in preparing a sample for analysis; in the two remaining sections there were no large sized stones. The soils were pounded down, and passed through a wire sieve.

The three layers of soil, dried and reduced to powder, were mixed together, and a prepared average sample, when submitted to analysis, yielded the following results:

Composition of Clover Soil, 18 *inches deep, from part of* 11 *acre Field, twice mown for Hay.*

Soluble in hydrochloric acid	Organic matter	5.86
	Oxides of iron	6.83
	Alumina	7.12
	Carbonate of lime	2.13
	Magnesia	2.01
	Potash	.67
	Soda	.08
	Chloride of sodium	.02
	Phosphoric acid	.18
	Sulphuric acid	.17

Insoluble in acid.	Insoluble silicious matter, 74.61. Consisting of:	
	Alumina	4.37
	Lime (in a state of silicate)	4.07
	Magnesia	.46
	Potash	.19
	Soda	.23
	Silica	65.29
		99.68

This soil, it will be seen, contained, in appreciable quantities, not only potash and phosphoric acid, but all the elements of fertility which enter into the composition of good arable land. It may be briefly described as a stiff clay soil, containing a sufficiency of lime, potash, and phosphoric acid to meet all the requirements of the clover crop. Originally rather unproductive, it has been much improved by deep culture; by being smashed up into rough clods early in autumn, and by being exposed in this state to the crumbling effects of the air, it now yields good corn and forage crops.

In separate portions of the three layers of soil, the proportions of nitrogen and phosphoric acid contained in each layer of six inches were determined and found to be as follows:

	Soil dried at 212 deg. Fahr.		
	1st six inches.	2d six inches.	3d six inches.
Percentage of phosphoric acid	.249	.134	.172
Nitrogen	.162	.092	.064
Equal to ammonia	.198	.112	.078

In the upper six inches, as will be seen, the percentage of both phosphoric acid and nitrogen was larger than in the two following layers, while the proportion of nitrogen in the six inches of surface soil was much larger than in the next six inches; and in the third section, containing no visible particles of root fibres, only very little nitrogen occurred.

In their natural state the three layers of soil contained:

	1st six inches.	2d six inches.	3d six inches.
Moisture	17.16	18.24	16.62
Phosphoric acid	.198	.109	.143
Nitrogen	.134	.075	.053
Equal to ammonia	.162	.091	.064
	lbs.	lbs.	lbs.
Weight of one foot square of soil	60	61	63

Calculated per acre, the absolute weight of one acre of this land, six inches deep, weighs:

	Pounds.
1st six inches	2,613,600
2d six inches	2,657,160
3d six inches	2,746,280

No great error, therefore, will be made if we assume in the subsequent calculations that six inches of this soil weighs two and one-half millions of pounds per acre.

An acre of land, according to the preceding determinations, contains:

	1st six inches, Pounds.	2d six inches, Pounds.	3d six inches, Pounds.
Phosphoric acid	4,950	2,725	3,575
Nitrogen	3,350	1,875	1,325
Equal to ammonia	4,050	2,275	1,600

The proportion of phosphoric acid in six inches of surface soil, it will be seen, amounted to about two-tenths per cent; a proportion of the whole soil, so small that it may appear insufficient for the production of a good corn crop. However, when calculated to the acre, we find that six inches of surface soil in an acre of land actually contain over two tons of phosphoric acid. An average crop of wheat, assumed to be twenty-five bushels of grain, at sixty pounds per bushel, and 3,000 pounds of straw, removes from the land on which it is grown twenty pounds of phosphoric acid. The clover soil analyzed by me, consequently contains an amount of phosphoric acid in a depth of only six inches, which is equal to that present in 247½ average crops of wheat; or supposing that, by good cultivation and in favorable seasons, the average yield of wheat could be doubled, and fifty bushels of grain at sixty pounds a bushel, and 6,000 pounds of straw could be raised, 124 of such heavy wheat crops would contain no more phosphoric acid than actually occurred in six inches of this clover soil per acre.

The mere presence of such an amount of phosphoric acid in a soil, however, by no means proves its sufficiency for the production of so many crops of wheat; for, in the first place, it cannot be shown that the whole of the phosphoric acid found by analysis occurs in the soil in a readily available combination; and, in the second place, it is quite certain that the root fibres of the wheat plant cannot reach and pick up, so to speak, every particle of phosphoric acid, even sup-

posing it to occur in the soil in a form most conducive to "ready assimilation by the plant."

The calculation is not given in proof of a conclusion which would be manifestly absurd, but simply as an illustration of the enormous quantity in an acre of soil six inches deep, of a constituent forming the smaller proportions of the whole weight of an acre of soil of that limited depth. It shows the existence of a practically unlimited amount of the most important mineral constituents of plants, and clearly points out the propriety of rendering available to plants the natural resources of the soil in plant food; to draw, in fact, up the mineral wealth of the soil by thoroughly working the land, and not leaving it unutilized as so much dead capital.

The exact determination of phosphoric acid in a soil, it may be observed in passing, is attended with no difficulty, if certain precautions, which it is feared are sometimes neglected by chemists, be taken. I will, therefore, give a brief outline of the plan commonly known to chemists as the molybdic acid plan of determining phosphoric acid, which yields accurate results.

Not less than 100 grains, or better 200 grains, of the dried and finely powdered soil are digested for an hour or thereabouts with three or four ounces of moderately strong nitric acid. The acid solution is then passed through a filter, and together with the washings from the insoluble portion of the soil left on the filter, is evaporated to a small bulk; thus getting rid of the greater part of the acid employed for effecting the solution. During evaporation a large excess of molybdate of ammonia is added to the solution, care being taken to keep it strongly acid.

If there be much phosphoric acid in the soil, a bright yellow precipitate, consisting of molybdic and phosphoric acid makes its appearance at once; if traces only be present, the yellow precipitate appears only on the concentration of the liquid, after the great excess of nitric acid has been expelled by evaporation. The yellow precipitate, containing the whole of the phosphoric acid present in the soil, molybdic acid, together with a little silica, and frequently some oxide of iron, is thrown on a filter and washed with a solution of molybdate of ammonia rendered strongly acid by nitric acid, until a drop of the washings passing through the filter ceases to show a reaction of iron with yellow prussiate of potash solution. It is then dissolved on the filter in an excess of ammonia, and the ammoniacal liquid precipitated with an ammoniacal solution of sulphate of magnesia, which

throws down the phosphoric acid as phosphate of magnesia and ammonia. After standing at rest for about twelve hours, the magnesia precipitate is collected on a small filter and washed clean with strong ammonia water. Together with the phosphoric acid, traces of silica, and generally also traces of oxide of iron, are thrown down with the magnesia precipitate. In order to separate these impurities, the precipitate is dissolved in a few drops of hydrochloric acid, and the acid solution carefully evaporated to complete dryness. The hard, dried residue is again made acid with muriatic acid; a little water is then added, and the liquid passed through a small filter, on which are left insoluble traces of the silica originally thrown down with magnesia. A few drops of citric acid having been added to the acid solution, with a view of keeping any traces of iron in solution, strong ammonia is finally added, which throws down a second time phosphate of magnesia and ammonia, now free from silica and oxide of iron. The precipitate is collected, washed with ammonia-water, dried, burned in a platinum crucible or capsule, weighed, and the phosphoric acid calculated from the weight of the tri-basic phosphate of magnesia left on burning.

Following this plan and the precautions here indicated, the smallest amount of phosphoric acid in a soil can be determined with great precision. If the magnesia precipitate be not re-dissolved and freed from silica, as pointed out, a higher per centage of phosphoric acid necessarily is obtained than the actual quantity which the soil contains.

Clover roots.—The roots from 1 square foot of soil were cleaned as much as possible, dried completely at 212°, and in that state weighed 240 grains. An acre consequently contained 1,493½ lbs. of dried clover roots.

The clover roots contained, dried at 212° Fahr.:

Organic matter*	81.33
Mineral matter,† (ash)	18.67
	100.00

* Yielding nitrogen	1.635
Equal to ammonia	1.985
† Including insoluble silicious matter (clay and sand)	11.67

Accordingly the clover roots in an acre of land furnished 24½ lbs. of nitrogen. We have thus:

	Lbs. of nitrogen.
In the 6 inches of surface soil	3,350
In large clover roots	24½
In second 6 inches of soil	1,875
Total amount of nitrogen in one acre of soil 12 inches deep	5,249½
Equal to ammonia	6,374½

Or in round numbers 2 tons 6 cwt. of nitrogen per acre; an enormous quantity, which must have a powerful influence in encouraging the luxuriant development of the succeeding wheat crop, although only a fraction of the total amount of nitrogen in the clover remains may become sufficiently decomposed in time to be available to the young wheat plants.

Clover soil from part of 11 *acre field of Burcott Lodge Farm, Leighton Buzzard, once mown for hay, and left afterwards for seed.*

Produce 2½ tons of clover hay and 3 cwt. of seed per acre.

This soil was obtained within a distance of 5 yards from the part of the field where the soil was dug up after the two cuttings of hay. After the seed there was some difficulty in finding a square foot containing the same number of large clover roots as that on the field twice mown; however, at last, in the beginning of November, a square foot containing exactly 18 strong roots was found and dug up to a depth of 18 inches. The soil dug after the seed was much drier than that dug after the two cuttings of hay:

The upper 6 inches deep, 1 foot square, weighed	56 lbs.
The next " " "	58 "
The third " " "	60 "

After drying by exposure to hot air, the three layers of soil weighed:

The upper 6 inches, 1 foot square	49¾ lbs.
The next " "	50½ "
The third " "	51¼ "

Equal portions of the dried soil from each six-inch section were mixed together and reduced to a fine powder. An average sample thus prepared on analysis was found to have the following composition:

Composition of Clover soil once mown for Hay, and afterwards left for Seed. Dried at 212° Fahr.

Soluble in hydrochloric acid....	Organic matter	5.34
	Oxides of iron	6.07
	Alumina	4.51
	Carbonate of lime	7.51
	Magnesia	1.27
	Potash	.52
	Soda	.16
	Chloride of sodium	.03
	Phosphoric acid	.15
	Sulphuric acid	.19
Insoluble in acid..	Insoluble silicious matter, 73.84. Consisting of:	
	Alumina	4.14
	Lime (in a state of silicate)	2.69
	Magnesia	.68
	Potash	.24
	Soda	.21
	Silica	65.88
		99.59

The soil, it will be seen, in general character, resembles the preceding sample; it contains a good deal of potash and phosphoric acid, and may be presumed to be well suited to the growth of clover. It contains more carbonate of lime, and is somewhat lighter than the sample from the part of the field twice mown for hay, and may be termed heavy calcareous clay.

An acre of this land, 18 inches deep, weighed, when very nearly dry:

	Pounds.
Surface 6 inches	2,407,900
Next "	2,444,200
Third "	2,480,500

Or in round numbers, every 6 inches of soil weighed per acre 2½ millions of pounds, which agrees tolerably well with the actual weight per acre of the preceding soil.

The amount of phosphoric acid and nitrogen in each 6 inch layer was determined separately as before, when the following results were obtained:

In Dried Soil.

	First 6 inches.	Second 6 inches.	Third 6 inches.
Percentage of phosphoric acid	.159	.166	.140
Phosphoric acid	.189	.134	.089
Equal to ammonia	.229	.162	.108

An acre, according to these determinations, contains in the three separate sections:

	First 6 inches. Lbs.	Second 6 inches. Lbs.	Third 6 inches. Lbs.
Phosphoric acid	3,975	4,150	3,500
Nitrogen	4,725	3,350	2,225
Equal to ammonia	5,725	4,050	2,700

Here, again, as might naturally be expected, the proportion of nitrogen is largest in the surface, where all the decaying leaves dropped during the growth of the clover for seed are found, and wherein root fibres are more abundant than in the lower strata. The first 6 inches of soil, it will be seen, contained in round numbers, 2½ tons of nitrogen per acre, that is, considerably more than was found in the same section of the soil where the clover was mown twice for hay; showing plainly, that during the ripening of the clover seed, the surface is much enriched by the nitrogenous matter in the dropping leaves of the clover plant.

Clover roots.— The roots from 1 square foot of this soil, freed as much as possible from adhering soil, were dried at 212°, and when weighed and reduced to a fine powder, gave, on analysis, the following results:

Organic matter *	64.76
Mineral matter †	35.24
	100.00

* Containing nitrogen	1.702
Equal to ammonia	2.066
† Including clay and sand (insoluble silicious matter)	26.04

A square foot of this soil produced 582 grains of dried clover roots, consequently an acre yielded 3,622 lbs. of roots, or more than twice the weight of roots obtained from the soil of the same field where the clover was twice mown for hay.

In round numbers, the 3.622 lbs. of clover roots from the land mown once, and afterwards left for seed, contained 51½ lbs. of nitrogen.

The roots from the soil after clover seed, it will be noticed, were not so clean as the preceding sample, nevertheless, they yielded more nitrogen. In 64.76 of organic matter, we have here 1.702 of nitrogen, whereas, in the case of the roots from the part of the field where the clover was twice mown for hay, we have in 81.33 parts, that is, much more organic matter, and 1.635, or rather less of nitrogen. It is evident, therefore, that the organic matter in the soil after clover seed occurs in a more advanced stage of decomposition, than found in the clover roots from the part of the field twice mown. In the manure, in which the decay of such and similar organic remains proceeds, much of the non-nitrogenous, or carbonaceous matters, of which these remains chiefly, though not entirely consist, is transformed into gaseous carbonic acid, and what remains behind, becomes richer in nitrogen and mineral matters. A parallel case, showing the dissipation of carbonaceous matter, and the increase in the percentage of nitrogen and mineral matter in what is left behind, is presented to us in fresh and rotten dung; in long or fresh dung, the percentage of organic matter, consisting chiefly of very imperfectly decomposed straw, being larger, and that of nitrogen and mineral matter smaller, than in well rotted dung.

The roots from the field after clover seed, it will be borne in mind, were dug up in November, whilst those obtained from the land twice mown were dug up in September; the former, therefore, may be expected to be in a more advanced state of decay than the latter, and richer in nitrogen.

In an acre of soil, after clover seed, we have:

	Pounds.
Nitrogen in first six inches of soil	4,725
Nitrogen in roots	51½
Nitrogen in second six inches of soil	3,350
Total amount of nitrogen, per acre, in twelve inches of soil.	8,126½

Equal to ammonia, 9,867 lbs.; or, in round numbers, 3 tons and 12½ cwts. of nitrogen per acre; equal to 4 tons 8 cwts. of ammonia.

This is a very much larger amount of nitrogen than occurred in the other soil, and shows plainly that the total amount of nitrogen accumulates especially in the surface soil, when clover is grown for seeds; thus explaining intelligibly, as it appears to me, why wheat, as stated by many practical men, succeeds better on land where clover is grown for seed than where it is mown for hay.

All the three layers of the soil, after clover seed, are richer in nitrogen than the same sections of the soil where the clover was twice mown, as will be seen by the following comparative statement of results:

	I. Clover Soil twice mown.			II. Clover Soil once mown and then left for seed.		
	Upper 6 inches.	Second 6 inches.	Third 6 inches.	Upper 6 inches.	Next 6 inches.	Lowest 6 inches.
Percentage of nitrogen in dried soil.	.168	.092	.064	.189	.134	.089
Equal to ammonia	.198	.112	.078	.229	.162	.108

This difference in the amount of accumulated nitrogen in clover land, appears still more strikingly on comparing the total amounts of nitrogen per acre in the different sections of the two portions of the eleven acre field.

Percentage of Nitrogen per acre:

	First 6 inches. Pounds.	Second 6 inches. Pounds.	Third 6 inches. Pounds.
I. In soil, clover twice mown*	3,350	1,875	1,325
II. In soil, clover once mown and seeded afterwards†	4,725	3,350	2,225
Equal to ammonia:			
* I. Clover twice mown.....	4,050	2,275	1,600
† II. Clover seeded.....	5,725	4,050	2,700

	Pounds.
I. Nitrogen in roots of clover twice mown.....	24½
II. Nitrogen in clover, once mown and grown for seed afterwards	51½
I. Weight of dry roots per acre from Soil I.....	1,493½
II. Weight of dry roots per acre from Soil II.....	3,622
Total amount of nitrogen in 1 acre, 12 inches deep of Soil I*	5,249½
Total amount of nitrogen in 1 acre, 12 inches deep of Soil II†	8,126½
Excess of nitrogen in an acre of soil 12 inches deep, calculated as ammonia in part of field, mown once and then seeded.....	3,592½
* Equal to ammonia.....	6,374½
† Equal to ammonia.....	9,867

It will be seen that not only was the amount of large clover roots greater in the part where clover was grown for seed, but that likewise the different layers of soil were in every instance richer in nitrogen

after clover seed than after clover mown twice for hay; or as it may be expressed: In 1 lb. of ammonia there were 3,592° more of ammonia in the land where clover seed was grown than where other clover was made entirely into hay; or the former part of the same field produced rather more than half the total quantity of nitrogen yielded by the latter.

Reasons are given in the beginning of this paper which it is hoped will have convinced the reader that the fertility of land is not so much measured by the amount of ash constituents of plants which it contains, as by the amount of nitrogen which, together with an excess of such ash constituents, it contains in an available form. It has been shown likewise, that the removal from the soil of a large amount of mineral matter in a good clover crop, in conformity with many direct field experiments, is not likely in any degree to affect the wheat crop, and that the yield of wheat on soils under ordinary cultivation, according to the experience of many farmers, and the direct and numerous experiments of Messrs. Lawes and Gilbert, rises or falls, other circumstances being equal, with the supply of available nitrogenous food which is given to the wheat. This being the case, we cannot doubt that the benefits arising from the growth of clover to the succeeding wheat are mainly due to the fact that an immense amount of nitrogenous food accumulates in the soil during the growth of clover.

This accumulation of nitrogenous plant food, specially useful to cereal crops, is, as shown in the preceding experiments, much greater when clover is grown for seed than when it is made into hay. This affords an intelligible explanation of a fact long observed by good practical men, although denied by others who decline to accept their experience as resting upon trustworthy evidence, because, as they say, land cannot become more fertile when a crop is grown upon it for seed which is carried off, than when that crop is cut down and the produce consumed on the land. The chemical points brought forward in the course of this inquiry show plainly that mere speculation as to what can take place in a soil and what not do not much advance the true theory of certain agricultural practices. It is only by carefully investigating subjects like the one under consideration, that positive proofs are given showing the correctness of intelligent observers in the fields. Many years ago I made a great many experiments relative to the chemistry of farm-yard manure, and then showed, amongst other particulars, that manure, spread at once on

the land, need not there and then be plowed in, inasmuch as neither a broiling sun, nor a sweeping and drying wind will cause the slightest loss of ammonia; and that, therefore, the old-fashioned farmer who carts his manure on the land as soon as he can, and spreads it at once, but who plows it in at his convenience, acts in perfect accordance with correct chemical principles involved in the management of farm yard manure. On the present occasion my main object has been to show, not merely by reasoning on the subject, but by actual experiments, that the larger the amounts of nitrogen, potash, soda, lime, phosphoric acid, &c., which are removed from the land in a clover crop, the better it is, nevertheless, made thereby for producing in the succeeding year an abundant crop of wheat, other circumstances being favorable to its growth.

Indeed no kind of manure can be compared in point of efficacy for wheat to the manuring which the land gets in a really good crop of clover. The farmer who wishes to derive the full benefit from his clover lay, should plow it up for wheat as soon as possible in the autumn, and leave it in a rough state as long as is admissible, in order that the air may find free access into the land, and the organic remains left in so much abundance in a good crop of clover be changed into plant food; more especially, in other words, in order that the crude nitrogenous organic matter in the clover roots and decaying leaves, may have time to become transformed into ammoniacal compounds, and these, in the course of time, into nitrates, which I am strongly inclined to think is the form in which nitrogen is assimilated, par excellence by cereal crops, and in which, at all events, it is more efficacious than in any other state of combination wherein it may be used as a fertilizer.

When the clover lay is plowed up early, the decay of the clover is sufficiently advanced by the time the young wheat plant stands in need of readily available nitrogenous food, and this being uniformly distributed through the whole of the cultivated soil, is ready to benefit every single plant. This equal and abundant distribution of food peculiarly valuable to cereals, is a great advantage, and speaks strongly in favor of clover as a preparatory crop for wheat.

Nitrate of soda, an excellent spring top dressing for wheat and cereals in general, in some seasons fails to produce as good an effect as in others. In very dry springs the rainfall is not sufficient to wash it properly into the soil and to distribute it equally, and in very wet seasons it is apt to be washed either into the drains or into a stratum

of the soil not accessible to the roots of the young wheat. As, therefore, the character of the approaching season cannot usually be predicted, the application of nitrate of soda to wheat is always attended with more or less uncertainty.

The case is different when a good crop of clover hay has been obtained from the land on which wheat is intended to be grown afterwards. An enormous quantity of nitrogenous organic matter, as we have seen, is left in the land after the removal of the clover crop; and these remains gradually decay and furnish ammonia, which at first and during the colder months of the year, is retained by the well known absorbing properties which all good wheat soils possess. In spring, when warmer weather sets in, and the wheat begins to make a push, these ammonia compounds in the soil are by degrees oxidized into nitrates; and as this change into food peculiarly favorable to young cereal plants, proceeds slowly but steadily, we have in the soil itself, after clover, a source from which nitrates are continuously produced; so that it does not much affect the final yield of wheat whether heavy rains remove some or all of the nitrate present in the soil. The clover remains thus afford a more continuous source from which nitrates are produced, and greater certainty for a good crop of wheat than when recourse is had to nitrogenous top dressings in the spring.

The remarks respecting the formation of nitrates in soils upon which clover has been grown, it should be stated, do not emanate from mere speculation, but are based upon actual observations.

I have not only been able to show the existence of nitrates in clover soils, but have made a number of actual determinations of the amount of nitric acid in different layers of soils on which clover had been grown; but as this paper has already grown to greater dimensions than perhaps desirable, I reserve any further remarks on the important subject of nitrification in soils for a future communication.

SUMMARY.

The following are some of the chief points of interest which I have endeavored fully to develope in the preceding pages:

1. A good crop of clover removes from the soil more potash, phosphoric acid, lime, and other mineral matters, which enter into the composition of the ashes of our cultivated crops than any other crop usually grown in this country.

2. There is fully three times as much nitrogen in a crop of clover as in the average produce of the grain and straw of wheat per acre.

3. Notwithstanding the large amount of nitrogenous matter and of ash constituents of plants, in the produce of an acre, clover is an excellent preparatory crop for wheat.

4. During the growth of clover a large amount of nitrogenous matter accumulates in the soil.

5. This accumulation, which is greatest in the surface soil, is due to decaying leaves dropped during the growth of clover, and to an abundance of roots, containing, when dry, from one and three-fourths to two per cent of nitrogen.

6. The clover roots are stronger and more numerous, and more leaves fall on the ground when clover is grown for seed than when it is mown for hay; in consequence, more nitrogen is left after clover seed than after hay, which accounts for wheat yielding a better crop after clover seed than after hay.

7. The development of roots being checked when the produce, in a green condition, is fed off by sheep, in all probability, leaves still less nitrogenous matter in the soil than when clover is allowed to get riper and is mown for hay; thus, no doubt, accounting for the observation made by practical men that, notwithstanding the return of the produce in the sheep excrements, wheat is generally stronger, and yields better, after clover mown for hay than when the clover is fed off green by sheep.

8. The nitrogenous matters in the clover remains, on their gradual decay, are finally transformed into nitrates, thus affording a continuous source of food on which cereal crops specially delight to grow.

9. There is strong presumptive evidence that the nitrogen which exists in the air, in the shape of ammonia and nitric acid, and descends, in these combinations, with the rain which falls on the ground, satisfies, under ordinary circumstances, the requirements of the clover crop. This crop causes a large accumulation of nitrogenous matters, which are gradually changed in the soil into nitrates. The atmosphere thus furnishes nitrogenous food to the succeeding wheat indirectly, and, so to say, gratis.

10. Clover not only provides abundance of nitrogenous food, but delivers this food in a readily available form (as nitrates), more gradually and continuously, and, consequently, with more certainty of a good result, than such food can be applied to the land in the shape of nitrogenous spring top-dressings.

Laboratory, 11 Salisbury square, Fleet street, E. C., *July*, 1868.

SALT, AND THE WAY TO USE IT.

By Hon. George Geddes.

Introduction.

Having, as a farmer, been a consumer of salt, and having for the last four years been the representative of the interests of the State of New York, as Superintendent of the Onondaga Salt Springs, I have become somewhat conversant with the matters treated of in the following article upon "Salt, and the Way to Use It." So many letters came to me, especially from the newly settled parts of our country, making inquiries as to salt water that is constantly being found by explorers, and often from parties that in boring for oil find salt water, that I supposed I would be doing some public service by giving the information contained in this article; and knowing that great losses occur by the improper, or rather unskillful use of salt, I have ventured some advice on that point. My knowledge of the salt made at the Onondaga Salt Springs, almost necessarily leads me to give a somewhat minute description of the processes used there in the manufacture. I desire to be distinctly understood as in no wise intending to disparage any other salt, for I well know that in various other places good salt is made. My great object has been to aid the great mass of small consumers in judging correctly of the quality of salt they can most conveniently procure, and to further aid them as to the best manner of using it.

Salt.

Common salt, *muriate of soda*, or, according to the modern system of chemical nomenclature, *chloride of sodium*, is a chemical compound of chlorine and sodium; 60.68 per cent of chlorine, and 39.32 of sodium.

Having given this chemical definition, we shall hereafter use the word "*salt*" as sufficiently descriptive of the substance under consideration.

So important is salt for the use of man that in the very few places in the inhabited part of the world where it is not found, so as to be

accessible to the people, it is held so valuable "as to become a substitute for coin." Fortunately, salt is found in great quantities, in the form of vast rocks or masses; in lakes or inland seas; in springs that have their waters impregnated with salt in passing over and through the beds that are so buried under the earth as to be beyond the reach of the miner; and lastly, the oceans that surround the whole earth are so impregnated with salt as to furnish an inexhaustible supply. In warm countries the sea water is evaporated by the sun and wind, leaving the salt behind. In cold countries, where fuel is scarce, the sea water is led into ditches lined with clay, and the water on freezing concentrates the salt in the remaining fluid, which, being thus saturated, is easily evaporated. So both heat and cold aid man in making salt from the sea. The vapor that rises from the sea has no salt in it, but when, by the winds, it is wafted far inland, until it encounters mountain ranges and is condensed into rain, it falls on the earth, and, percolating through it, carries to the great reservoir everything soluble which it finds in its way. There these soluble substances accumulate, and more than three-fourths of them all is common salt. It has been said by a high authority "that it is the most plentiful soluble substance in nature." No less fortunate for man is it that this abundant supply of salt is widely distributed, so as to be within easy reach of nearly every part of the habitable earth. It can never be monopolized or made very expensive, except at a very few points. In our own country it abounds. It is produced in the State of New York in sufficient quantity to supply the wants of 10,000,000 of people for all the purposes for which salt is used. In Michigan, the supply of water that may be had is practically unlimited; and that too where the salt can be rolled from the manufactories directly on board the vessels that navigate the great lakes. On the Kanawha river, in Northwestern Virginia, are salt wells that furnish an abundant supply of water, and, in their immediate vicinity, coal mines furnish fuel of good quality. From the works, the salt is floated down the river to market, at Pomeroy, in the State of Ohio, and on the Ohio river, and at Mason city, in Virginia, on the same river. In Southwestern Virginia, near the States of Kentucky, Tennessee and North Carolina are salt wells giving the best of water in unlimited quantities. From these last mentioned wells the rebels made their salt during the rebellion in sixty manufactories. These wells of Ohio and Virginia are in the central part of the States east of the Mississippi river, and furnish supplies of salt suffi-

cient for not less than 7,000,000 of people. West of the great river there can be no scarcity of salt.

Petit Anse Island, situated in the State of Louisiana, about four miles from Vermillion Bay, on the Gulf of Mexico, has on it a bed of rock salt, within one mile of an inlet, navigable by small steamers. The extent of this bed of rock salt is unknown, it having been discovered as late as 1862. The rebels took from this bed during one year more than 20,000,000 pounds of salt. The quality of this salt is excellent, and as it is covered with earth to the depth of only 16 to 17 feet, it must be easily worked. Prof. Charles Goessman visited this locality in 1866, and said of it: The figures of cost leave but little doubt that the parties will be able to lay one ton of rock salt for less than $4 upon the dock at New Orleans, a price which would be less than that of the English coarse salt on board of a ship at Liverpool."

This salt being ground into grains of suitable sizes for various uses, must furnish a great number of people with as good salt as there is in the world, at a price so low that there can be no complaint by the consumer. This will be when enterprise becomes the order of things on the shores of the Gulf of Mexico.

Enough has been said to show that the people of the United States are abundantly supplied with this necessary of life.

QUALITY OF SALT.

Like most other things, salt has its grades of excellence. The chemical definition given in the beginning of this article described *pure salt* as an article very rarely seen. The brines from which salt is made are, perhaps, never without some other mineral substance held in solution beside the constituents of salt. Prof. George H. Cook, in his analysis of brines, made under the authority of the State of New York, gives sea water as having 78.61 parts of salt in 100 parts of mineral matter. The 21.39 parts were principally lime and magnesia. The Cheshire brines of England had 97.63 parts of salt. The Dieuze water found in the northeast of France, had 92.77 parts of salt, and the Onondaga water had 95.42 parts of salt in every 100 parts of mineral matter.

The manufacturer of salt considers all the mineral matter that he finds in the water that he is handling, that is not necessary to make salt, as *impurities*. Some of these impurities do positive injury to the salt unless removed, while some of them are of no account, except as they take up room in measuring or weighing the salt, and so far injure

the consumer, as they cause him to pay for what is of no value, and perhaps deceive him in regard to the quantity of salt he is in fact using to cure his food. The great object of the honest manufacturer is to remove all the impurities from the water, either before or during the process of manufacture. We will follow Prof. Cook in his analysis, to see how far the manufacturer is successful. The salt being made, and 100 parts taken, it was found that from the sea water there were 96.43 parts of salt and 3.57 parts of foreign matter. In the Cheshire salt (Liverpool, England), the best sample 98.61 parts of salt; in the Dieuze, 98.48; and in the Onondaga, 98.84 parts of salt. Thus, it appeared that the Onondaga salt maker had left in his salt only 1.16 parts of impurities. In fact every sample of all the kinds proved to be of at least good quality. The principal impurity left in the several samples was *sulphate of lime* (common plaster of Paris), which does no other injury than to add to the weight; in the sea salt, 2.04; in the Cheshire, 1.35; in the Dieuze, 1.70; and in the Onondaga, 1.14 parts, in 100.

The impurities that do positive injury are what are called *deliquescent chlorides;* thus called as they readily absorb moisture from the air, and cause the salt to become damp in proportion to the quantity contained in it. *Chloride of calcium* consists of 63.35 parts of chlorine and 36.65 of calcium. It is acrid, very sharp, and bitter to the taste. *Chloride of magnesium* consists of 73.64 per cent of chlorine and 26.36 per cent of magnesium. It is extremely bitter. These two chlorides are the most injurious impurities found in salt, not only from their tendency to cause the whole mass to imbibe water, but from their positive injury to provisions, butter, and cheese, and particularly to fish. Salt having any considerable proportion of these chlorides will cause beef to become hard and dark colored; the rind to slip off pork when it is boiled. Fish salted with it soon becomes hard, dark colored, and tasteless. Butter and cheese have a bitter taste imparted by these substances, and very soon spoil.

In the samples of salt analyzed by Prof. Cook, he found of these deliquescent chlorides the following proportions:

In salt made from sea water			73 parts in.....	10,000
In the Cheshire, commonly called Liverpool		"stoved,"	4 parts in	10,000
do	do	"common,"	25 parts in....	10,000
do	do	"rough,"	37 parts in....	10,000
Dieuze,		"fine,"	20 parts in....	10,000
do		"medium,"	26 parts in....	10,000
Onondaga,		"solar,"	4 parts in....	10,000
do		"boiled,"	2 parts in....	10,000

At the hazard of being tedious, the foregoing results of Prof. Cook's investigations have been given, as it was thought very important to inform farmers and others who do not have enough to do with using salt to become expert in judging of its quality, as to what impurities really did injure salt for domestic use, and, if possible, lay the foundation of some instruction that should enable such persons to at least be able to detect very bad salt when they examine it; and also to enable them to pronounce with some certainty when bad salt has been the cause of damage to butter and other articles of food. Large packers and other persons concerned in the use of great quantities of salt, generally acquire sufficient knowledge to guide them in its use; men who use but little salt rarely learn to judge of it, and any misfortune that may happen to their provisions is very generally laid to bad salt. It is more pleasant to have a scape-goat to put all blame upon than it is to admit that we have ourselves done the mischief. Salt often answers well for this purpose. To show that these views have a strong basis of fact to stand upon, let us produce a history of some of the

Popular Prejudices.

The United States government formerly refused to use salt made in the United States for packing pork for the use of the army. Under date of April 19, 1845, Geo. Gibson, Commissary-General, writes to Wm. L. Marcy, then Secretary of War, that "the use of Turk's Island salt has always been required in salting pork for the army." He relates at length the history of a trial made under direction of the War Department, which abundantly proved the superiority of home-made salt, and say, that though the experiment has been of a limited character, the evidence thus far showed our own salt as equal to Turk's Island, but he advises against any general change, and that more trials be made. More trials were made, and pork salted, one-half of a hog with Turk's Island, the other half with Onondaga salt, was tested in hot climates, and, after long periods of time had elapsed, the end was that the government officers learned that salt made here was at least as good as salt made anywhere to keep army and navy pork. And since that time our own salt has been used by the government.

In England the people long insisted on using salt made on the coast of France, from sea water of much inferior quality to their own salt, made at Liverpool. Chemical analysis proved that this French

production called "Bay Salt" had fully twice as much of impurities as "stoved" salt made at Liverpool, but blind prejudice paid no attention to scientific statements. In 1807 was published *Reese' Cyclopedia* containing an article on salt, in which every effort is made to combat this prejudice, and, among other things, proposing that the government should, by heavy duties on foreign salt, force the people into the use of the home-produced salt.

Recently, says Prof. Cook, "many of the fishermen on our coasts imagined that salt made on the Mediterranean coasts of France was better than any other for the curing of fish, and salt was imported largely for that purpose. A few years ago the French fishermen complained that the salt from their Mediterranean coast was not proper for preserving fish, and that salt made on the Atlantic coast of France and Portugal was the only kind that could be depended upon." The French government appointed a commission of eminent chemists, who said that Mediterranean salt was fully equal for preserving fish to that made on the Atlantic coast, the only difference being that the Mediterranean salt is freer from dirt, and a little less deliquescent.

"At Dieuze they manufacture a gray salt on purpose to accommodate the prejudices of some of their customers. It is made by adding common clay to the brine in the pans until the required hue is obtained."

Thus we have the fishermen of the United States going to the Mediterranean coast of France to buy salt to cure their fish, that the French fishermen say is good for nothing; while in fact salt is produced in great abundance in our own country that is as good as any that is made anywhere. Recently the salt makers of Onondaga have been making efforts to overcome the prejudices of our fishermen, and to do this they have sent their salt to eastern coasts, and induced the fishermen to use it and test its quality. To do this it has been necessary, in some instances, to take the salt on board of the fishing vessels and nearly give it away to procure a trial. In this way our manufacturers have succeded in opening what promises to be a large trade. For, so far as our salt has been tried by the fishermen, it has been found to be so exactly suited to their wants, so far as the size of the crystals and the quality is concerned, that they are now willing to buy it.

The true secret of the prejudices that have prevailed everywhere in England, France and here, lies in the fact, as before suggested, that men who do not know how to use salt properly, charge their ignorance

to the quality of the salt, as by far the most pleasant method of disposing of the whole case.

PROPER FORM AND CONDITION OF SALT FOR DOMESTIC USE.

The various purposes for which salt is used require that the manufacture should be conducted with special reference to the particular object in view. For salting butter and cheese and for table use the purest salt is required, and to obtain it the consumer will be justified in incurring any reasonable expense, for if salt used in butter has any of the acrid chlorides in it, the butter, in a short time, will become bad, especially so in a warm climate. Salt is not necessary to preserve butter—it is used to impart flavor, and if the salt has any acrid or bitter taste it will soon give it to the butter.

The deliquescent chlorides cannot be *evaporated* in the process of making salt. Great heat will *decompose* them, but it is not practicable to apply it. There is a *chemical* process, that has, within the last few years, been perfected, that entirely disposes of the chlorides and leaves the salt *pure*. This process costs, when applied to the Onondaga salt, about twelve and one-half cents per bushel of fifty-six pounds weight.

It is easy to describe this chemical process, for it is a very simple one. In the analysis of Onondaga salt water by Prof. Cook, he found chloride of calcium (lime) and chloride of magnesium, in so small proportions that if we separate the chlorine from the lime and magnesia, we find that of all the chlorides contained in the salt, just one per cent was chlorine—a proportion so small as to be of very little consequence, except when combined with salt which was to be used for such articles as butter. The question then arose, how can this one-hundredth part be taken from the other ninety-nine parts? A part of the chlorine was found to adhere to the surface of the particles of the salt, and that it could be in part removed by washing, followed by thorough draining and drying the mass. This is in fact the process that has been long in use in manufacturing "Bay" salt on the coasts of France, Spain and Portugal. There the salt, as it begins to form in the water, is pumped upon platforms and is there deposited, and washed; after it has become hard it is broken into pieces and piled into heaps, where "this bitter fluid drains from the incrusted heaps for a long time, and the salt made in this way is not deemed perfectly good till it has been exposed for three years." (*Reese' Cyclopedia*—Article on Salt). This sea-water has, perhaps, four times the quantity

of these "bitter waters," as they are sometimes called, than has the Onondaga water. Even if the washing and draining process is found to be effectual, it takes too long for the American people to adopt it.

Salt, it will be remembered, consists of *chlorine* and *sodium*, in the proportions before given. This noxious substance, chlorine, when combined in the proper proportions with sodium, makes salt. The Onondaga water has just 100th part too much chlorine for the sodium that is in it. If we add sodium to the water in the proper proportion to combine with this excess of chlorine, we shall make some salt; for the chlorine will let go of the lime and magnesia, with which it was found combined in the water, and unite with the sodium. The lime and magnesium will fall to the bottom of the water, and can then be easily separated from it. Whether separated or not, is not so important. It will only injure the color of the salt, if allowed to remain. The deleterious impurity has, by its combination with the sodium, been made into pure salt.

The process thus briefly described, has, at great expense, been perfected and extensively put in practice at Syracuse, though not in just the manner that might be supposed from the foregoing statement of the principles involved. The salt is first made in the ordinary manner, either by solar heat, or in kettles over fires. It is then put in piles in stores-houses, where it drains off all the moisture that can thus be taken from it, and in this draining much of the chlorides pass off. When the draining is perfected, the salt is put in large vats, where brine, in which the proper quantity of soda has been dissolved, is put upon it, and the whole is thoroughly stirred up, and washed until the chlorine becomes united with the soda, and the lime set free. The lime thus freed, imparts to the brine a lead-colored tinge. The salt is then put in baskets over the vat, and all the brine runs from it. The salt is now *pure*. The next thing to be done, is to put it in large iron cylinders that revolve over fires. The salt passes through these cylinders, and is there perfectly dried. Next it passes to mills, where it is ground into various grades of fineness for table and dairy use; then it is put in bags, boxes, or barrels, and is ready for use. The machinery and various appliances necessary to make this highest grade of salt are extensive and costly, and have been brought to their present effective condition, after the consumption of much time, and the making of many experiments. The whole matter is patented. The salt thus made goes under the general brand of "Factory Filled Dairy Salt," put on by the manufacturer.

In addition to what has been said as to the freedom of this salt from the chlorides, it is proper to add that the consumer buys salt, and it may be said with nearly literal accuracy, nothing but salt. The water has been driven off, and the tendency to absorb moisture from the air is so little, that Professor Cook said of it in 1861, "A satisfactory evidence of the purity of salt is its dryness. I have had this specimen in a wooden salt-box for four months, and still it loses less than one per cent of water by heating it to melting." * * * "Your 'Factory Filled' possesses no deliquescent properties, and contains no active substance except *pure* salt." Since this statement was made, the process has been much simplified, and reduced to scientific accuracy, under the immediate supervision of Prof. Charles A. Goessman, who has devoted years to this matter.

The end the salt-makers of Onondaga had in all this expenditure of time and money, was the production of salt that could be depended upon, and that should be better than any other that was made from brine. Having proved the purity of their salt by all scientific tests, they then subjected it to the test of a trial in salting butter on a large scale, and in different hands, and in places wide apart. To make this trial entirely satisfactory, they entered into arrangements with one or more dairymen in the counties of Orange, Delaware, Greene, Broome, Chenango, Otsego, Cortland, Chemung, Cattaraugus, Chautauqua, Steuben, St. Lawrence, Jefferson, and Lewis, in this State, and Bradford county in Pennsylvania, to use alternately, "Factory Filled Dairy" salt of Onondaga, and the celebrated "Ashton," a salt made with great care, and known as the best brand of Liverpool, England, in the manufacture of butter during the season of 1867, and to prepare each, one package, salted with each kind of salt, and at the same time of the year, to be sent to Buffalo, for the Fair of the New York State Agricultural Society, to be there judged of by a committee appointed by that Society. Thirty firkins of each kind, placed in barrels and surrounded with salt came from these counties to the State Fair, and were tested by the best judges known to the Society, Col. O. C. Crocker, of Broome, Col. G. W. Buck, of Chemung, and James R. Crofoot, Esq., of Lewis County. This committee were assisted, at their own request, by a number of experts. The examination was most thorough and conclusive in its results. The committee said: "On inquiring the reason for this unusual display, we found that it was mainly for the purpose of testing the relative values of Factory Filled Dairy salt of Onondaga, and the Ashton

salt, as preservatives of butter. * * * In no instance of our examination were we told the salt used, until we had decided the question of the quality of the butter." The committee give the names of the several manufacturers of the duplicate firkins, that their well known characters might be considered as a sufficient guarantee of fairness, and say that the certificates of these men were in each case laid before the committee, "so that we made no mistake in regard to the kind of salt used." They pronounced, in twenty-five cases, the butter cured with the Factory Filled Dairy salt, to be the best, as compared in each case with its alternate package cured in the same dairy with Ashton; "but in no instance did we judge that any shortcoming was attributable to the *quality* of the salt used, but rather to the working of the butter and the *quantity* of salt used. In five cases the Ashton-cured butter was the best."

It is hard to devise a severer test than the one made, and it is worthy of remark that in no case do the committee condemn the quality of the salt used. The probable reason why the Factory Filled Dairy salt won five times in six is, that the flavor given by that salt is the most delicate—for it has none of the deliquescent chlorides, while the Ashton has the very small quantity of six parts in ten thousand. It is difficult to assign any other reason for the Onondaga salt winning so marked a victory.

Having thus described, it is to be hoped so as to be understood, the best and purest kind of salt known in any market of the world, it only remains to add that this salt, costing only 62½ cents per barrel more than ordinary salt, should be extensively used, not only for butter, cheese, cooking, and the table, but that it is by far the most desirable for rubbing meat.

Common Salt, Boiled and Solar.

As the salt made at the salt springs of Onondaga county, State of New York, supplies 10,000,000 of people with all they use for every purpose, and as the whole process of manufacture there is carried on under the immediate supervision of State officers, thus making everything public and open to view, we there find the necessary information to enable us to describe what is known in commerce as "boiled," and what is known as "solar" salt.

The Onondaga Indians, instructed by the Jesuits, made salt in kettles, suspended on a pole, which was held up by crotched sticks. The water was dipped from the springs into the kettle, a fire started, and

when the water had boiled away there was some salt in the bottom of the kettle. To this day very little change has been made in principle from this primitive method. True, we have set the kettles in long arches, one behind the other, so that they number thirty to forty, and sometimes more, in a row, that the heat may all be saved, and we place two rows of these kettles side by side. We now draw the water from wells from 200 to 350 feet deep, by powerful pumps, and send it through pipes that now have an aggregate length of perhaps forty-five miles, to the various salt works, "blocks" we call them; large cisterns along side these blocks receive the water, which comes from the earth very bright and sparkling, but which soon takes on a reddish tinge. The small trace of carbonate of iron, less than one in 10,000 parts, that there is of the mineral matter in the water, parts with some carbonic acid, and an oxide is formed. This gives the red tinge. The first thing is to remove this coloring matter from the water by settling it. Soon the water becomes very transparent and of a bluish color. It is now ready to be drawn into the kettles. This is effected by a pipe running along the center of the arch between the kettles, having faucets on each of its sides, from which the kettles are filled with water as required. During the boiling the most bulky foreign substances are removed from the water by the use of pans that are placed on the bottom of each kettle, having handles that stand vertically, and reach above the tops of the kettles. By this settling process, and by these pans, all the impurities, except the deliquescent chlorides, are removed from the brine. In due time the salt is drawn from the kettles, placed in baskets on sticks over the kettles, where it drains until the baskets are wanted to be again filled, when it is thrown into large bins situated alongside the kettles. In these bins the salt must remain fourteen days, after the last basketful is put in, and as much longer as may be necessary to properly drain it. Then, upon being pronounced dry enough to be packed in barrels, by a State inspector, it may be packed and put into the market. This is the common "boiled" salt, and if carefully and skillfully made it is of high quality, so good that many persons who live near the works use it for salting their meat and butter, and insist that they do not want any of the "new-fangled notions." If the salt is made with skill these "old-fashioned people," as they call themselves, get along tolerably. So convenient for use is this boiled salt, and its quality is generally so good, that large quantities of it are, and will continue to be used. It is to secure the best possible quality for this salt that the

State officers make their principal efforts. Inspectors, having each twenty to thirty of these "blocks" in charge, pass through them constantly and direct the whole process of manufacture. Every basket of salt is to be examined by them before it is put into the bin; and after the salt is packed in barrels other officers weigh the salt, and pod each barrel to see if they can find anything wrong. If everything is found right, the inspector's brand is put on each package.

The boiling of salt is an art, and requires skill, which can only be had from practice; and some times high wages will not procure that skill. It would be too much to say that no dirty or poor salt made in this way ever finds its way into the market, for it is not practicable to have a State officer all the time in each block; but it is safe to say that very rarely does a barrel get branded that is so poor that fifty-six pounds of its salt, besides the salt in the brine, will not save a barrel of pork perfectly, if used by a *person skilled in packing.*

How to Judge of the Boiled Salt.

It is not easy to instruct in such a matter by paper directions, still something may be said that will assist in forming a safe opinion. The color should be pure white, not a dead white, but a bright silvery white. Some salt may have a red tinge and still be good, but Onondaga salt should not be thus colored.

Dryness.—Salt should be dry, and when it is clasped in the hand it should not pack into a compact mass, but should fall apart on opening the hand. The grain should be sharp, not soft like superfine flour. The sizes of the crystals vary in boiled salt. The salt made in the kettles nearest the fire will be finer than that made further from the fire. The rule is, the faster the salt is made the finer the crystals, and the finer they are the longer time is required to drain the salt

Salt varies greatly in weight—a measured bushel varies from thirty-six pounds to eighty and eighty-five. A statute bushel is fifty-six pounds; so, unless you are a judge of salt, buy by weight.

Merchants sometimes try to make sales by advertising *new* salt. Some things are doubtless better for being new, but salt is not one of these things. The older it is the more likely it is to be dry; and if old salt is not dry, if kept, as all salt should be, in a dry place, it is because there are some of the deliquescent chlorides in it, and these certainly you do not want.

In making brine from boiled salt, heat it, and skim off everything

that rises to the surface; saturate the water fully; set it away, and allow it to cool. The plaster of paris that may be in the salt will settle to the bottom. Pour off the brine from the top and use it on your meat, but do not use the sediment, unless you find that it is salt, and not plaster of paris. These directions are not necessary for "packers" of meat. They know how to take care of themselves. The man who puts down but one barrel of pork in a year may be benefited by them.

SOLAR SALT.

Solar salt is made by a very slow process, and for this reason is almost always good. The water, as it is pumped from the wells, is drawn into rooms about eighteen feet wide, and perhaps a quarter of a mile long. These rooms or vats are shallow, and have covers to run on and off as the weather may require. In these vats the water is allowed to settle and evaporate and become strong. Then it is removed from the first series of rooms, which are called "deep rooms," because they will hold twelve to fourteen inches in depth of water, into the next series, which are used for saturating the water, for in them the water is kept until it has deposited all the sulphate of lime (plaster of paris) and begins to deposit salt. The plaster of paris will go down before any salt falls. The water is now saturated and ready to make into salt, and is at once drawn into the "salt rooms," where in good warm, windy, dry weather the salt is rapidly made, forming crystals of all sizes from that of a grain of mustard seed to a walnut. From the "salt rooms" it is drawn in carts to the store-houses, where, by reason of the coarseness of the crystals, it drains rapidly, but it is by law required to drain at least fourteen days before it can be put into market. Solar salt, to the extent that the market demands, is screened, so as to separate the largest crystals from the smaller. The large crystals are sent into the market under the trade mark of Diamond C. The smaller with the mark Diamond F, which simply means Diamond coarse and Diamond fine.

We will now consider the

WAY TO USE SALT.

The first object aimed at in curing meat, is to take from it a part of what Dr. Emmons calls its "constitutional water," and put in its place, and in the substance of the meat, salt. Thus dry salt much sooner "strikes in" than does wet or moist salt. The English people "dry-salt" their meat very generally. It is sometimes done by rub-

bing the meat with very fine salt, and then placing it in piles, and when the salt is absorbed rubbing again, and so repeating the process until the meat becomes so dry that it will take no more salt. Sometimes it is packed in dry salt in casks, and the labor of rubbing saved. By the rubbing process the meat is made to take a large quantity of salt, and is thus fitted for keeping a long time in hot climates, but is made unnecessarily salt for keeping in cold climates. The object of using brine is to keep air entirely away from the meat; it does not aid in salting, but it retards the process. The English advocate salting meat while it is yet warm with animal heat. Our American "packers" very generally refuse to pack meat until all animal heat is out of it. The following receipt for salting meat is taken from the "*Encyclopedia of Domestic Economy*," published in London in 1852—as being furnished by Admiral Knowles: "As soon as the ox is killed let it be skinned and cut up into pieces fit for use as quick as possible, and salted while the meat is hot; for which purpose have a sufficient quantity of bay salt and saltpetre pounded together and made hot in an oven, of each equal parts; with this sprinkle the meat at the rate of about two ounces to the pound; then laying the pieces on shelving boards to drain for twenty-four hours, turn them and repeat the operation, and let them lie for twenty-four hours longer; by this time the salt will be all melted and will have penetrated the meat, and the pieces may then be drained off. Each piece must then be wiped with clean, dry cloths, and a sufficient quantity of common salt, made hot likewise in an oven, and mixed when taken out with about one-third of brown sugar; the casks being ready, rub each piece well with the mixture and pack them well down, allowing about half a pound of the salt and sugar to each pound of meat, and it will keep good for several years, and eat well. It is best to proportion the casks or barrels to the quantity consumed at a time, as the seldomer it is exposed to the air the better. The same process does for pork, only a smaller quantity of sugar, and more salt, will answer; but the preservation of both depends equally on the meat being hot when first salted." So much for Admiral Knowles, who evidently salted his beef to keep for "several years;" but we quote further: "If the salting is performed immediately after the animal has been slaughtered, and is still warm, and before the fluids are coagulated, the salt penetrates rapidly by means of the blood vessels through the whole substance of the meat; and this is the practice in Ireland, in the provision trade. In warm

climates it is important to perform the operation of curing meat very quickly, to prevent putrefaction; and Mr. Jackson, in his reflections on the trade in the Mediterranean, informs us that this operation is admirably performed at Tunis, where the heat is 110° in the shade. There a good sized bullock of 600 or 700 weight is killed and salted in three hours. They use a good deal of pepper."

The "packers" of provisions of the northwest may very likely say "the animal heat must all be out, or the meat will spoil." The men of Texas may learn something to their advantage from what is done at Tunis. We have no personal experience in salting meat reeking with animal heat, and have only made the foregoing extracts to show how widely experienced men differ, and with some hope that good could be extracted from them for the people of the south, where to keep a slaughtered animal until all animal heat has departed is to keep it until it is spoiled. And we add, that we were taught in boyhood, and have generally followed this teaching, to salt our pork the day it was killed. If the slaughtering was over by noon, and the hogs not very large, in the following evening the pork has generally gone into the barrel. Our way is this:

First, have well fattened, healthy hogs, slaughter them early in the morning of a cool day in December, have them perfectly washed and scraped off, first in hot, then in cold water, until every particle of scurf has been removed; after dressing, spread them wide and give the air free access to the inside of the carcase. If the weather should be intensely cold take care that the surface of the meat does not get frozen, as may sometimes happen long before the animal heat has left the thicker parts. Split down and take out the leaf lard, and take off head, hams, and shoulders, and cut the sides into strips at right angles, to the back-bone, of suitable width for cooking. Most farmers remove the ribs and lean meat before cutting up the sides, and this is much better than salting down the bone, for the lean meat can be used while fresh, when it is much more valuable than it is after being salted. The barrel should be well seasoned and *perfectly* tight, and must never have had tainted or soured pork in it, nor must it ever have had beef packed in it, and certainly it must not be an old whisky cask, for if its skin has once been filled with that product of corn, your other product of that excellent grain won't stand it at all.

The barrel being all right, and the pork sufficiently cooled, cover the bottom at least half an inch thick, with solar or some other as good salt, having large-sized crystals. Place the pieces of pork on

edge around the outside of the cask, and then fill in the center, always placing the skin of each piece on the outside. Fill up close as practicable. Then take of the best fine ground salt, that which is good enough to salt butter, and fill every crevice between the pieces, and level the layer off with this fine ground salt. Next put in sufficient of coarse solar salt to keep the layers of meat apart, and to feed the brine; then put on the next layer, and so continue until you are within two inches of the top of the cask, which two inches fill with salt. The brine should not be put on until a week or ten days has elapsed. If there is a little animal heat in the pork when it is packed, it will make its own brine, or nearly so.

The brine should reach nearly to the top of the salt, *but never above it*, and should be as strong as salt will make it. In no case attempt to keep 200 pounds of pork with less than fifty-six pounds of salt in addition to that used in making brine.

As the pork is used from the cask, see that whatever is left is under brine, *and that salt reaches above the brine.* Many people suppose that if all the pork in the cask is kept covered with *brine* that it is safe in hot weather. This is not enough; the *salt* must always reach above the brine, and the meat must be covered with brine too. It often happens, that during the summer the brine is several inches above the meat and above the salt too, as from time to time the pieces are taken out for consumption. The top of this brine being exposed to the warm air of summer, its surface sours. The animal matter that always is in brine rises to the surface and there becomes *tainted.* A heavy coating of this animal matter will in a few days, if undisturbed, be found on top of the brine; and as the good woman of the house, after an interval of ten days, or a fortnight, visits her pork barrel, she is astonished as she removes the cover that sat loosely on top, to see the "blanket," perhaps half an inch thick on top of the brine, and she is very much shocked with the odor that rises from it. "What is the matter with that salt that I paid an extra price for?" Nothing, my good woman, but there is something wrong on top of your brine. You have always known that if you used up all the meat in a cask, and left two or three inches of salt in the bottom, and a foot or more of brine, that in a few days of hot weather, the small scraps that floated on the surface would become tainted, and the whole smell very unpleasantly; so you took good care to clean out your cask when the last piece of meat came out of it, unless the cask was in a very cool place and closely covered. If the salt in

your pork barrel had reached above the brine, none of this trouble would have come, for the oily matter in the brine would have been held down by the salt, or if every day you had been to the cask and taken out a piece of meat, and in finding one to suit you, had stirred the brine and salt all up, it is not likely you would have had any sour brine. Casks that are headed up tight after being filled with pork, should be laid down on the bilge and rolled half over every three or four weeks.

But how can this pork that has begun to sour be saved? If the mischief has not gone too far this can be done by taking the meat out of the cask, scraping each piece on every side, and then washing it in a solution of about a pound of common soda, such as may be readily purchased at the grocery stores, in one gallon of water, thoroughly. The best way is to take a sufficient quantity of this solution in a small tub, and pass each piece of meat through, rubbing it while under water smartly. Clean out the cask, wash it with water, soap, and ashes, and make it perfectly clean; wipe it dry, place the cask, open end down, on three stones, build a fire with corn-cobs or some other fuel that will impart no bad odor, and heat the cask as hot as possible without burning it. Take new salt and new brine and repack the meat, and if, as was said, you have acted in time, your meat is as good as ever.

This matter has been thus fully discussed, as this is the most common way in which farmers lose their pork in the summer season. It is not disputed that people have lived long lives without having their meat sour as has been described, because all the circumstances have not happened to be combined in their cases, necessary to produce this result; but most farmers do not live to old age, without having meat injured, and if they were to look carefully into the matter, it might turn out that, oftener than they would at first suspect, the loss occurred in this very way.

It is proper, before leaving this matter of preserving pork, to say that many hogs' carcases are tainted before they are cut up for the barrel. Of course there is no remedy after this has happened, and the soap-maker can make more out of such subjects than anybody else.

To Cure Pork Hams.

Hams are sometimes cured, or rather salted, by rubbing them, and bacon is also sometimes so cured. It is important in rubbing that the meat should be damp, so as to readily absorb the salt. Ground

dairy salt is best for rubbing. The more common way among farmers is to put their hams into a fully saturated brine, and add six ounces of pure saltpetre and two quarts of good molasses to each 100 pounds. Add a little salt to feed brine, and see that the hams are all under the brine and held there. When sufficiently salted, smoke them, hanging the shanks down.

This is substantially, the "sugar cured" ham of some well known packers.

In salting cheese and butter, the makers usually go very much by taste, but it has been tolerably well settled that two and one-half pounds of dairy salt is about right for one hundred gallons of milk, calling eight and one-half pounds of milk a gallon. Butter, if properly made and taken care of, will keep without being salted, but the rule for salting may be stated thus: Use one ounce to the pound of dairy salt, more or less, varying the quantity of water in the butter when salted.

As butter is of all animal substances one of the most difficult to keep sweet and sound, it is thought well to say something as to the best methods known to preserve it. Assuming that the butter has been made with skill, freed from all buttermilk and *not worked too much*, it should be put in perfectly air-tight white oak firkins, having extra thick staves. Before the butter is put in the firkin, the wood should be thoroughly scalded with *hot brine* made from the same salt used in the butter. This brine will so penetrate the wood as to destroy the odor, and will so fill the pores as to drive out the air, which, if left in, will get into the butter. This scalding must be thorough, and in every case *new* brine must be used, as once using the brine renders it unfit for purifying the second firkin. After the firkin has been thus prepared, pack the butter solidly, putting on the top of it a clean white cloth, and cover the cloth with a layer of the same kind of salt, one to two inches thick; fill to near, but not quite, the top of the salt with brine, and place a weight on top of all; then put the butter in a dry cellar, *having no connection with vegetables or any matter that gives off odor*, and there, watching that the salt is always *above* the brine, let it remain until wanted for use or market. If this butter is to be transported great distances, or exposed in damp, unventilated storehouses or cellars, the firkin should be placed in a barrel and surrounded with salt on all sides, to keep it cool and protect it against every source of injury.

The Hon. A. B. Dickinson, our Minister to Nicaragua, supplies

himself with butter preserved in this way. In 1862 he wrote a letter to a friend here, that so tells the whole story, and is so characteristic, that an extract will be given for the edification of our readers, and especially of such of them as have enjoyed the pleasure of his acquaintance in years gone by:

"A firkin of butter, seasoned with Onondaga salt, left Steuben county, New York, in October last, and reached this place (Leon) in January. It passed the ordeal of a voyage of more than 1,000 miles in the tropics—was shipped and re-shipped, was sent across the Isthmus of Panama, remained at Punta Arenas three days in the scorching sun, and when the thermometer stood at 120° in the sun, was put on board of an open bungo to Barquito, thence to Leon in an open cart, protected all this while by only packing the firkin in the middle of a barrel of salt, where it still remains (Feb. 14; what has not been used), the surface being carefully covered with salt every time enough is taken out to last the family six or eight days. It stands in a room where the thermometer ranges from 78° to 90°. This butter I pronounce of better quality, after this long journey, than any which the people of Syracuse or Albany are eating, and equal to one-half the butter that is put on the tables of the best hotels in Albany, at this season of the year. The secret of all this is, that this butter was made by a women who understood her business; it is the product of good cows, kept on the best of feed at a time when the pastures were fresh and nutritious, and not too wet. In fact there is no excuse for any man's having poor butter on his table, if he is able and willing to take the pains to make it right. I must not be understood as saying that common, or what is sometimes called good butter, can be shipped to such a climate as this without deterioration; none but the first quality will stand the voyage. Even with the best of care on the trip, it must be of the best quality in every respect. There must be no mistake in the cow, in the food she eats, nor in the process of manufacture, nor in the quality of the salt used for seasoning. It will neither do to leave any milk in the butter, nor to work it so as to break the grain. The failure in any of these requisites, in the least degree, is likely to be fatal to your butter, and the nearer home it is sold, and the sooner it is eaten, the better it will be for the credit of the manufacturer, and the health of the subject, who is destined to eat and digest it."

Mr. Dickinson's great experience as a manufacturer and dealer in butter, has qualified him to speak with authority, and his suggestions are entitled to be received as of great weight.

Salt as Manure.

There has been much written as to the value of salt as a manure, and many experiments made, and yet we are very much in the dark. Some experimenters say it is of great value, others have not been able to see any effect from its use, while still another class have suffered great injury from its use. Extensive investigations have convinced us that these diverse and sometimes opposing results are due to variations in the *quantity* used, and the manner of using, and the difference in the compositions of the soils on which it has been used.

Salt in large quantities, entirely destroys the fertility of a soil. The ancients understood this, and they sowed salt on the sites of destroyed cities to insure their being thenceforth barren. Virgil reprobated a salt soil, and Pliny affirmed that when "dispersed" over land, it caused it to be barren. It takes but little salt spread on the surface to kill vegetation, and this is especially true of sour, rushy land after draining. In England, an experiment made by the "application, in autumn, of sixteen bushels of salt to the acre, on such land, showed it to be sufficient to kill the aquatic plants, and late in the following summer, a most flourishing crop of rich grass appeared, of which the cattle were remarkably fond, and for many years the land retained and exhibited a superior verdure to the neighboring grounds."

Very elaborate tests were made in 1804 of the value of salt as a manure for potatoes. The salt was applied at the rate of seven and a half bushels per acre in beds a yard wide and forty long, a single row being planted along the center of the bed. One of these beds had no manure; one had the salt alone; the others were treated with various well known manures. Great care was taken to have the whole trial conducted with accuracy. The only point of importance that is left out of the account given is the manner of applying the manure. Whether it was put on the surface or dug into the ground we are not told, but the results are given. The product of the salt manured row was to the unmanured row as 198 is to 157. Salt combined with other substances gave marked improvement, and alone it proved itself superior to everything but "Chandler's graves," used at the rate of 1,089 pounds to the acre, and the salt, combined with thirty bushels of soot to the acre, beat the Chandler's graves as 240 is to 220. Of all the twenty-five rows, only those treated with lime at the rate of 121 bushels to the acre, and sawdust at the rate of 363 bushels to the acre, fell below the unmanured row.

This trial of salt brought out this singular fact, that it is of value

when combined with other subtances, so far as they were used in these experiments, except Chandler's graves. The salt probably entered into and "pickled" the graves so that they did not decay.

The soil on which this trial was made is described as a ferruginous sand, brought to a due texture and consistence by a liberal covering of pond-mud, and had been previously used as a nursery for raising forest trees. Four hundred grains of soil gave of sand, of different degrees of fineness, about 280 grains; of finely divided matter, which appeared in the form of clay, 104 grains; loss in water, 16 grains. There was about eighteen per cent of carbonate of lime, and about seven per cent of iron in the soil. There were no indications of gypsum or phosphate of lime. It was observed during the trial "that those beds, where the salt had been used, were visibly and palpably moister than the rest, even for weeks after the salt had been applied." This word "applied" may indicate that the manures were sown on the surface. This condition of superior moisture continued until rain fell.

Other experiments have been made that gave no benefit from the use of salt, and after wading through the reports of a great many of them, we come to this: Some soils have enough salt in them, and more added does injury. Such lands may be found along the sea-coast, and where salt springs appear. Other lands are greatly benefited by light dressings of salt. English farmers "scatter salt over their fields at the rate of two bushels per acre, with good success," and this quantity may be enough. Some men have greatly puzzled themselves over this fact, that light dressings are beneficial while heavy ones do positive injury; and have finally said: "As salt, in small quantities, is known to accelerate the putrefaction of animal substances, and when in larger, to retard it, and thus is useful in assisting the organs of digestion in men and other carniverous animals," * * "so it may aid in reducing vegetable matter in the soil into food for plants, if applied in small quantities."

In the neighborhood of the Onondaga Salt Springs many farmers have tried salt, and have come to different conclusions as to its value. They have not conducted their experiments with the scientific accuracy necessary to give them much value, but certain things have been learned. One of them is, the new beginner is very apt to put on so much as to destroy or greatly injure his crop. On the dark colored soils of the Marcellus shales, which are geologically above the salt group of rocks, salt has been said, by those who have learned

to use it there, to be of great value, especially when sown on barley ground, immediately after the seed has been put in, at the rate of two or three bushels to the acre. Favorable reports have also been had from salt thus sown on wheat. Years ago we made some trials of salt, using 40 bushels to the acre. The result was quite unsatisfactory, except as a lesson.

It is often stated that salt in sufficient quantities to kill wire worms, grubs, &c., that prey upon crops, may be sown on land without injury to crops. This is a wild mistake. Men may have sown perhaps five bushels of salt on an acre of corn land, and had no grubs, and good corn. Such coincidences may happen. Five bushels of salt spread over an acre makes a very thin covering.

Conclusion.

In concluding this article we wish to call attention to the fact that in our country salt is perhaps the cheapest article of consumption that we buy in the market, and the quantity consumed by each individual is so small, less than one bushel for each man, woman, and child, for all purposes, that it is wise to buy the best article there is in the market for the purpose for which it is used. A barrel of pork cured with solar salt and dairy salt mixed will not cost twenty-five cents more than it would if the commonest salt that finds its way into market had been used. Any farmer or other person that salts a little for his own use, by adopting the method herein recommended, will find that he has an article so superior to any that is packed in the usual way, that he will be quite likely to continue to use it. Certainly no one can afford to use poor salt in butter or cheese. In proposing methods of preserving provisions, as we have, it has not been done with the idea that there were not many readers who, to say the least, had as much, perhaps more, knowledge of the matter than we have. Such persons will, of course, follow their own well tried methods, but the mere tyro, at least, may find ours useful.

Salt as a Fertilizer.

The following letter, received by me from a middle aged and inquiring farmer, well known as a man whose eyes are wide open and ready to see every improvement, I think throws some light on the way not to use, as well as the way to use, salt as a manure. The results given, it is true, are based on judgment, and the scientific man may justly say are but guess work. With the exception of the

experiments made at the Michigan Agricultural College, I know of nothing more scientific that has been given on this continent than the trials of salt, reported in the following letter. The Michigan experiments were made on clover and timothy. Mr. Newman's letter tells us something of the effects produced by salt on grain crops, and for want of something more certain and scientifically accurate, I give his letter, erasing all but the initials of the names of the gentlemen whose practices he refers to:

South Onondaga, N. Y., *Feb.* 10, 1869.

The Hon. Geo. Geddes—*Dear Sir:* Please allow me to request you to enlarge one portion of your article on salt, in the *Tribune* of Feb. 3, namely: That which refers to salt as manure, because, as you truly say, "we are yet very much in the dark." Does salt promote vegetation or destroy it, or both? How does it act? J. P. C., of Otisco, put a handful of salt into each hill of potatoes around the seed, and the result was very decisive. Not one sprout was ever seen above ground. H. H. soaked his seed-wheat last fall in a strong brine to kill smut, and, not spreading the grain sufficiently to dry it, the salt soaked into the germs, and quite a fraction of the seed never grew. You speak of using "forty bushels of salt to the acre," and thereby learning "a lesson." To each of these three farmers I look up with reverence, and yet I should never put forty bushels of salt on an acre, nor a handful on any plant I did not wish to kill. Dr. White, of Buffalo, gave me, for some time, infinitesimal quantities of strychnine with beneficial effect; but if he had given me a large quantity at once, I am sure I should not now be troubling you with this letter. We all learn by experience that two or three bushels of gypsum to the acre is enough; and does not every one know that salt is much more powerful than gypsum? Try a little of each on the tongue, a piece of fresh meat, or a plant. I have a conviction that salt will prove a better and cheaper manure than gypsum, when we learn how to use it. In 1867 my neighbor, R. B., sowed salt on his young oats, about as he would sow plaster on clover. Where the salt was sown the oats were plainly much better than on the remaining part of the field, and these salted oats were so much plumper and heavier than common, that they were much praised by Syracuse buyers when carried to market. Last winter, after drawing home a few tons of gypsum, I drew home about two tons of sweepings of ground dairy salt, and sowed about two bushels on an acre, on parts of two lots of barley and one of oats, when the grain was one or two inches high, being very careful to spread this fine dairy salt so thin and even as not to kill any of the young plants. When running my reaper around my oat field I could plainly see that my salted oats were taller, thicker, and brighter than the others, and almost entirely exempt from the prevailing rust. My oats and R. B.'s grew on a gravely or cobble-stone loam. One piece of barley, growing on a muck-shale, did not show much difference. Another piece, growing on a rich clay loam,

was left nearly two weeks after it should have been cut. My hired man said, "what makes the straw on this part of the field look so bright and stand up so well, while that is down and looks like old straw?" Said I, "don't you remember that we sowed salt here, and there none?" How does salt act? Neighbor H. says salt dissolves a portion of silex and thus strengthens the straw so that heavy grain will not lodge. Your article suggests another and, to me, a new idea, namely, the moisture it attracts and holds at the surface of the soil. We all know that salt will attract moisture and drip unless kept in a very dry place. Do not salt and gypsum both attract and retain moisture at the roots of plants near the surface of the soil in a summer drouth? If this is the only benefit, salt and gypsum might do no visible good in a wet season. In conclusion, I will express the hope that practical farmers will ascertain, by repeated experiments, what soils and crops salt will benefit, and then we will call upon chemists to tell how and why it produces such results.

W. W. Newman.

The hope expressed in the last sentence, that "practical farmers will ascertain by repeated experiments," all about the way to use salt, we join in, and when they have done this work, should we live to see that day, we shall doubtless be quite interested in what chemists may say as to the "how and why" of its operation. The important thing is to get at the facts. Farmers may, and should aid in this work, but the Agricultural Colleges, with their experimental farms, alone possess the means of scientifically settling and determining what the facts really are. Long ago, Dr. Darwin and Sir Humphrey Davy, besides many others, tried to determine something definite as to the effect of salt upon vegetation, and did succeed. Individual trials may be such as to satisfy the men that make them, whether they had better continue to use salt as a manure, but numerous trials conducted with great accuracy, and on various soils, and at various and remote places, will be necessary before the chemist will be able to tell us the way in which salt acts, and for these trials we are to look to the agricultural colleges that are to be located in the various States. One of the important points to be aimed at by these colleges, should be to act in concert in making their experiments in every branch of agriculture. If some common plan can be secured, progress in the acquisition of knowledge will be rapid. Thus far science and practice have had so little of co-operation, that the acquisition of agricultural knowledge has been very slow.

When the article on "Salt, and the Way to Use It," was written, it was not supposed that the part relating to its use as a manure would attract special attention, but Mr. Newman's letter shows that

farmers are desirous of learning all that is now known on this subject, and, at least, Mr. Newman is ready to communicate the results of his own and some of his neighbors' experience. Mr. Newman's grain, that stood until it was over-ripe before it was harvested, and where not salted, showed the usual appearance, looking like "old oat-straw," while the part of the field that was salted was bright and stood up well, sustains the views of Sir John Sinclair in his "Inquiry into the nature and causes of the Blight, the Rust, and the Mildew in Wheat." Sir John found that a field of oats that had five acres, manured with saline matter, "had a much healthier color than the rest of the field, and that the produce was estimated to be about one-third better, the quantity of the produce and the quality of the grain being both considered, though the other parts of the field had been partly manured with lime, and partly with dung." On inquiry he found that lands lying on the sea-coasts of the northern parts of England and the southern parts of Scotland were either wholly protected from mildew, or prevented from receiving any material injury from it.

Mr. H. Sickler, in Cornwall (the extreme southwestern county of England), manured his turnips with salt, and followed with wheat, and says that in no case where he used the salt on the turnips did his wheat rust, but that in cases where he did not use salt his wheat rusted so badly that it did not give him five bushels to the acre; but never a straw rusted where he had used the salt at the rate of 25 bushels to the acre in preparing his land for the crop of turnips that went before the wheat. This large quantity of salt must have become well mixed with the soil in preparing it for the turnips, and again plowing for the wheat.

It is now 70 years or more since these observations were made by Sir John Sinclair and Mr. Sickler. As late as 1852, Mr. Pusey, in *The Royal Agricultural Society's Journal*, said: "Common salt may prevent mildew, and is known certainly, on some soils, to strengthen the straw." He says that nitrate of soda had formerly been extensively used as a manure for wheat, but that it was discontinued "in consequence of its tendency to lay the corn (wheat) and to produce mildew." These two serious faults, it now appears, may be corrected by mixing with the nitrate a moderate quantity of common sea-salt, and it may therefore be readily supposed to counteract the dangerous suddenness of vegetation that nitrate produces. He gives the particulars of two trials:

"The nitrate was sown at the rate of one hundred weight to the acre, mixed with one hundred weight of common salt; but this quantity was not given at once, being divided into two doses, applied at a fortnight's interval, and in showery weather." This application was to a ten acre piece o white wheat, a portion being left unmanured, and another portion manured with guano at the rate of two hundred weight to the acre. The unmanured produced at the rate of 21 bushels per acre; the guano, 24 bushels per acre, and the nitrate 1 cwt., and salt 1 cwt., 25½ bushels. The other trial was made on an eight acre piece of red wheat, following barley. The wheat had begun to appear very blue and spindling, notwithstanding a good coat of dung was given to it in the autumn. The improvement was immediate and stood the test of threshing, for the account is as follows: Undressed, nineteen and three-eighths bushels, and manured twenty-seven and three-quarter bushels per acre. Thus, according to Mr. Pusey, the overgrowth produced by the nitrogen, whether as ammonia in guano, or whether as a nitrate, and the consequent tendency to rust growing out of a too rapid forcing of the wheat, was counteracted by the use of common salt. Mr. Newman, who probably has never seen any account of these English observations, has, from his experiments and those of his neighbors, arrived at the same conclusion viz.: That salt protects grain from rust or mildew. It is not likely that all these observers have been mistaken, and unless they are, salt is of great value in this respect, and, when we add to this great good quality, the power shown by the Michigan agricultural experiments to increase the growth of clover and timothy, we must estimate salt as one of the most valuable manurial substances, in proportion to its cost, of any known. Other farmers beside Mr. Newman may have valuable facts that they are willing to give to the public. It may be that even now, if we could only bring all that the farmers know in regard to salt as a manure, into one focus, we might be able to give the scientific men something to do in the way of constructing theories in regard to the true value and best mode of using salt on our farms. A neighbor, who is a free user of salt as a manure, and fully believes in its value, informs us that the only time in which he has used it on grain without seeing a marked result was when he, in one instance, sowed it on winter wheat just as it was coming up. Why the salt did no good in this case he can give no reason. He, like other progressive farmers, is an experimenter in a small and safe way, and looks carefully at the results. He believes

that the straw of wheat, barley and oats is made stronger and brighter by the use of salt; and that the grain itself is plumper and brighter, but like other men who make their living by farming, he has neither the time nor the money necessary to institute and carefully conduct long series of accurate trials, such as are necessary to determine the laws that govern the action of salt when applied to farm crops.

REPORTS OF COUNTY SOCIETIES.

ALBANY.

Albany, *February* 1, 1869.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

Dear Sir—The Albany City and County Agricultural and Industrial Society, held its annual meeting at Reed's Hotel, New Scotland, January the 27th, 1869. The attendance was large, exhibiting considerable interest. For several years past there has been want of union and harmony in the councils of the Society, which has caused a degeneracy of influence and character. An effort was made (and we think with favorable success) to unite the energies and enlist the hearty co-operation of all our strength. We hope for a brighter future. The report of the Treasurer shows $400 in the treasury. No exhibition being held in 1868, the reports of officers were consequently only of a formal character. A question arose from the society not holding the annual fair, that the membership should remain valid until the next exhibition, it being claimed that it had been so held heretofore, in two instances. The president so ruled, and the board of officers and managers were authorized to extend the membership if deemed for the interest of the society.

Officers: President, Jos. Hilton, New Scotland; Treasurer, John S. Robbins, Albany; Secretary, S. R. Earls, Albany.

Yours respectfully,

S. R. EARLS,

Secretary Albany County Agricultural Society.

ALLEGANY.

Angelica, *February* 16*th*, 1869.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

Sir—I have the honor to report that the Allegany County Agricultural fair for 1868, was held on the 23d and 24th of September, a most unpropitious time, as it rained continuously both days. There

was, however, a fine display of cattle and horses, and a large number of people on the ground, and it was evident that if the weather had been good the fair would have been better attended, and a larger number of entries made than ever before.

At the annual meeting, held December 25th, 1868, the following officers were elected for 1869: Jeffry M. Thomas, President; Ransom Lloyd, Vice-President; D. P. Richardson, Secretary.; James Lockhart, Treasurer.

Very respectfully,

D. P. RICHARDSON, *Secretary.*

BROOME.

Mr. B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

The 11th annual fair of the Broome County Agricultural Society was held at the fair ground of the society, near the city of Binghamton, on the 15th, 16th and 17th of September, 1868.

The attendance at the fair though not large was encouraging, and quite up to the average of the past four years. The weather was far from being as pleasant as could be desired, being for the greater part of the time cold and uncomfortable, while a piercing wind rendered it still more disagreeable. The entries were as large as could have been expected, and the attendance very fair. The show of cattle was not what it should have been; that of sheep and swine better. The entries in the dairy department were not numerous, but the show and quality good. The vegetable department was better by far than for years before, while the display of fruit, taking in consideration the unfavorable season, was quite up to the standard. Domestic manufactures and fancy needle-work were well represented.

The annual address, by James Richards, L. L. D., was replete with excellent suggestions and sound thoughts, able as well as practical.

The receipts and disbursements of the society were as follows:

Receipts		$375 00
Disbursements, preparing the ground, services, pasturage, printing, &c.	$121 70	
Premiums	260 75	
Making a total of		382 45

In conclusion, this society, through us, desire to express its thanks to yourself for the assistance and advice you have so readily at all

times tendered us, and to assure you of the heartfelt sympathy we have entertained for you in your recent illness.

O. C. CROCKER, *President.*
S. F. CARY, *Secretary.*
WM. M. ELY, *Treasurer.*

Binghamton, *Nov.* 11, 1868.

CATTARAUGUS.

Cattaraugus County Agricultural Society.

The twenty-seventh annual fair of this society was held on the society's grounds, in Little Valley, on the 15th, 16th and 17th of September, 1868. Although the attendance was not as large as compared with some former years, yet it was such as, under the circumstances, was very gratifying to the officers and friends of the society. Through sectional jealousy and a spirit of strife, growing out of the removal of the county seat from Ellicottville to Little Valley, the citizens of the former place appointed a horse-trot and horse fair, on the same days of our county fair; nevertheless, the receipts were amply sufficient to meet all demands, and pay in full the generous list of premiums offered by the society, which were increased beyond the premiums offered in former years, and to leave a surplus in the treasury. The weather the first and second days was unfavorable, but the last day of the fair was fine. Some remarkably fine horses, both stallions and roadsters, were on exhibition, showing considerable spirit and improvement in this direction. The show of sheep was increased in numbers from last year, and the quality of those on exhibition could rarely be excelled, especially in the Cotswolds.

The exhibition of cattle was very good, especially in pure blood Devons and Ayrshires. There was a spirited competition in the classes of working oxen and milch cows. The exhibition of dairy products has never been excelled by any fair of the society. There was a very creditable show in the fruit and vegetable departments. The ladies' department was well represented, and added much to the interest of the occasion. On the whole, everything passed off very pleasantly for all parties concerned. The first premium, $100, for the best trotting horse, was awarded S. H. Titus, of East Hamburgh, on his mare, "Molly Newton." The second premium, $50, for trotting, was awarded G. Y. Beebe, of Perrysburgh, on his horse, "Yankee Dan."

The annual address was delivered on the last day of the fair, by Hon. Norman M. Allen, of Dayton, in this county, and was listened to by the large crowd of farmers, and others in attendance, with marked attention. The address was well delivered, and was able, practical and instructive, and at the close of its delivery a copy was unanimously requested of the speaker for publication.

The receipts into the treasury, from all sources, during the year 1868, were $1,699.79. Expenditures for the same period were $931.15, leaving a balance in the treasury, on the 31st day of December, 1868, of $768.64.

The annual meeting for the election of officers was held at the Gano House, Little Valley, on the 2d day of January last, and the following gentlemen were, by ballot, elected officers of the society for 1869: Chauncey A. Snow, Conewango, President; Halsey Safford, East Otto, Vice-President; Horace S. Huntley, Little Valley, Secretary; Erastus N. Lee, Little Valley, Treasurer; and six directors, viz.: Joseph Smith, Otto; L. S. Whitney, Little Valley; Samuel S. Huntley, Ellicottville; Harvey Tuthill, East Otto; Cyrus A. Fuller, Little Valley; Ezekiel Kelly, Mansfield.

HORACE S. HUNTLEY,

March, 1869. *Secretary.*

CAYUGA.

SECRETARY'S OFFICE, CAYUGA COUNTY
AGRICULTURAL SOCIETY, AUBURN, N. Y., *March* 10, 1869.

The annual fair of the Cayuga County Agricultural Society was held at the grounds of the society, in Auburn, on 15th, 16th and 17th days of September last. The exhibition was not marked by any peculiarity over those of previous years.

The show of stock, with the exception of horses, was small, but the quality of that which was exhibited was of a superior kind. The display of implements for farming purposes was full, especially of harvesting machines, of which this vicinity boasts largely in the manufacture.

The two first days were devoted to the exhibition of stock and implements, and the last day principally to the show and speeding of horses.

The new Southern Central Railroad, now in process of construction, passes close by the grounds of the society, and will afford in the future, better facilities for the extreme ends of the county to attend our annual fairs.

At the annual election held in December last, the following officers were elected for the ensuing year:

Allen D. Morgan, President; L. C. Mann, Treasurer; A. B. Hamblin, Secretary; J. Lewis Grant, Director; J. B. Burlow, Director.

Yours respectfully,

A. B. HAMBLIN,

Secretary.

CHAUTAUQUA.

To the Secretary of the State Agricultural Society of the State of New York:

In obedience to the requirements of section 9, chapter 425, of the Laws of the State of New York, passed April 13th, 1855, we present the following report and statement of the transactions of the Chautauqua County Agricultural Society for the year 1868:

On the 8th, 9th, 10th and 11th of September, 1868, a union fair, consisting of the thirty-second annual fair of the Chautauqua County Agricultural Society, and the tenth annual fair of the Chautauqua Farmers' and Mechanics Union, was held on the grounds of the last named society at Fredonia, N. Y., at which the whole number of entries were 1,394; whole number of life members, 383.

Total receipts of said fair amounted to	$1,641 65
Received from State	348 56
	$1,990 21

For expenses, the society paid as follows:

Printing	$169 00
Address	75 00
Secretary's clerks	43 00
Police	103 50
Gate tenders	37 00
Expense on ground, repairing halls, track, &c	344 77
Premiums	1,021 50
	$1,793 77

Officers of the Chautauqua County Agricultural Society for 1869:

President, L. L. Hyde; Secretary, John S. Russell; Treasurer, John B. Miner.

Officers of the Chautauqua Farmers and Mechanics Union, 1869: President, L. L. Hyde; Vice-President, Thomas L. Higgins; Secretary, John S. Russell; Treasurer, John B. Miner.

Dated the 20th day of January, 1869.

L. L. HYDE.
JOHN S. RUSSEL.
J. B. MINER.

CHEMUNG.

Secretary's Office, Chemung County Agricultural Society, Millport, *November 17th*, 1868.

B. P. Johnson, *Secretary State Agricultural Society, Albany, N. Y:*

Dear Sir—We held our second annual fair of our present organization, at Elmira, October 7th, 8th and 9th. The weather was a little unfavorable for a successful exhibition; the two first days cold and some rain. The attendance, however, was fair, and the exhibition in most of the classes, was very good. The show of horses was excellent, in fact, Chemung county is becoming noted for her fine and valuable horses, and possibly is not excelled by any of her sister counties in the State. Of fruit, there was a good representation, especially apples, pears and grapes. Eli Wheeler, Esq., of Elmira, exhibited some very fine samples of grapes, of the most desirable varieties, and established the fact that good grapes may be successfully grown in the Chemung Valley. The department for farm implements was very well represented. A creditable interest was manifested by the citizens of the county to sustain the society in its future good work of encouraging and stimulating a healthful desire to improve the material wealth of the county.

The society do not own their show grounds, but have rented, for a term of years, a very desirable and eligible location, on which they have erected large, commodious buildings, within the corporation limits of Elmira.

The officers of the society are: A. J. Wynkoop, President; A. R. Frost, Secretary; S. T. Arnot, Treasurer; and one Vice-President for each town in the county. Also, six Trustees, holding office three years.

A. R. FROST,
Secretary.

CHENANGO.

The annual fair of the Chenango County Agricultural Society was held on their grounds, at Norwich, on the 15th, 16th and 17th, of September, 1868, and upon the whole was a success.

There has not been a better show of cattle for many years, at least as far as quality was concerned, evincing that our farmers in this truly agricultural and grazing district have lost none of the interest or pride heretofore manifested in propagating choice breeds.

The same may be said of horses, sheep and swine. In some other departments we were sorry to see a falling off in the number of entries, and to witness a lack of interest observable in other years. This was particularly noticeable among the articles of domestic manufacture, and in the taste and style hitherto displayed in the mechanic arts.

In these departments, and perhaps in others, we judge it may be necessary to revise the premium list, greater inducements being offered to our wives and daughters and to our artisans to emulate each other in the respective spheres and vocations, and in the workmanship of their hands.

While there were some beautiful and skillfully wrought specimens of domestic manufacture and ornamental work as we have ever seen, the number was by no means as large as it should have been. In mechanics the same remarks will apply.

Receipts for the year	$2,089 84
Payments	1,854 64
Balance in treasury	$235 20

CLINTON.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

The Clinton County Agricultural Society held its annual fair on the 22d, 23d, and 24th days of September, 1868.

The first day was devoted to entries and preliminary arrangements. The books at night showing an increase in the number of entries of 253 over the previous year, and, also, the fact that the articles, particularly cattle, were to be superior to previous exhibitions. In the afternoon, a match game of base ball was played on the grounds,

affording satisfactory entertainment to all present. Receipts larger than expected.

The second day was the business day. Every article was on the grounds and in its place soon after nine o'clock, when the judges commenced work. A number of persons had been appointed judges who, previously, had taken no further interest than to "go the last day," but now were at work with as much interest as though they were attending to private business. As anticipated on the day previous, the exhibition fairly outstripped all others of the kind held in this county, our best breeders of cattle, horses, sheep and swine being on the grounds with their stock, the greater part of which would have been an honor to our State exhibition. The miscellaneous department was filled to overflowing with grains, seeds, vegetables, &c. Floral hall, a building which heretofore had been amply large, did not cover near ground enough for the fruit, flowers, fancy work and domestic manufactures that claimed a place under its roof. A look into it was sufficient to convince one that the ladies had done their part to make the fair an attractive one. Receipts to-day equaled expectations.

Thus far the weather had been inclined to be unfavorable, but the third day opened bright and clear. By ten o'clock, a large crowd had collected, when the president made a few remarks and the premiums awarded were declared. The remainder of the day was devoted to paying premiums and expenses, and to trials of speed.

On the whole, the fair was a decided success, and showed very plainly that Clinton county can have *good* fairs if the farmers will work in earnest.

The best of feeling prevailed throughout the entire exhibition, and all went home seemingly satisfied that they had spent three days pleasantly and profitably.

The annual meeting for the election of officers for 1869 was held January 28th, and resulted in the re-election of Mr. John D. Platt, President; S. B. Miller, Secretary, and D. W. Marsh, Treasurer.

Annexed find treasurer's report:

Balance on hand last year.....	$213 00	
Total receipts 1868.....	1,128 71	
		$1,341 71
Paid premiums awarded.....	$491 00	
Paid purses awarded for trotting.....	110 00	
Carried forward	$601 00	$1,341 71

Brought forward	$601 00	$1,341 71
Paid purses awarded to base ball clubs.....	40 00	
Paid expenses, including rent of grounds....	547 66	
		1,188 66
Balance on hand.....		$153 05
From which the society presented the secretary with....		25 00
Leaving balance on hand, January 28th, 1869.....		$128 05

S. B. MILLER, *Secretary.*

COLUMBIA.

Office of Columbia County Agricultural Society.

Secretary New York State Agricultural Society:

Dear Sir — The twenty-eighth annual fair of the Columbia County Agricultural Society was held on their ground, at Chatham Four Corners, September 15th, 16th, 17th, 18th and 19th, 1868. The first day it rained from morning until night, and very few entries were made. The second day opened fine, and a good representation of stock was had, not as large as in former years, but the quality fully sustained. The exhibition of horses was very good, and very much interest was manifested in this department of the exhibition. Poultry was largely represented, and more interest manifested in this department than ever before; the largest exhibition of poultry ever held in the county, and of superior quality. That of farm implements was full and showed commendable improvement. The exhibition in the hall (the handiwork of the ladies) was not so full as is former years, but the quality was far superior. Fruit and vegetables were well represented, and many very choice varieties of grapes and small fruit were exhibited. Musical instruments and sewing machines were well represented, and added great interest to the entertainment. In fact, the whole exhibition was a success.

A very able and practical address, which was listened to with interest, was delivered, on the fourth day of the fair, by the Hon. John T. Hogeboom.

The society have made great improvements in their grounds and buildings, adding by purchase, five acres to their grounds, removing farther from the main entrance and regrading their track upon scientific principles; making it the best half mile track for the trial of speed and exhibition of horses, in the State. Cattle pens and sheds

for the exhibition of stock and agricultural implements, have been rebuilt and very much improved. A new building erected at the main entrance to the grounds for ticket offices and business office of the society, and a new judges' stand, neatly and substantially finished, about thirty new and substantial booths, from which about $750 rent was received.

The annual meeting of the society was held the 1st Monday, January 4th, 1869, at which the following officers were elected: President, S. G. Bushnell, Esq.; Secretary, I. T. Hogeboom; Treasurer, H. D. Simpson. All of Chatham Four Corners.

Respectfully yours,

ABM. ASHLEY, JR.,
Secretary.

Treasurer's Account for the Year.

Receipts at gate during the fair		$2,755 25
Subscriptions		50 00
Life members		320 00
Rent of grounds, &c		746 41
All other sources		387 79
		$4,259 45
Paid out as follows:		
Premiums	$1,928 13	
Buildings and repairs	3,616 97	
Expenses during fair	395 79	
To H. D. Simpson, Treasurer	64 26	
		6,005 15
Excess of expenses over receipts		1,745 70
Old debt of society		$3,700 00
Total indebtedness of society		$5,445 70

CORTLAND.

B. P. JOHNSON, Esq., *Secretary N. Y. State Agricultural Society:*

The Cortland County Agricultural Society held its thirtieth annual fair on the 15th, 16th, and 17th September, 1868, opening with a cold drizzling rain, and its persistance during the whole day. It was feared our laborious and careful preparations for the event were put "*hors du combat.*" The second day's dawn was equally unpromising, but by noon the grounds showed that the Cortland

farmers meant to have a fair, and so they did. If in numbers the exhibition fell short of our former shows, the quality was there.

In cattle, horses, sheep and swine, the show was excellent, and the same may be said of mechanical and farm implements, household industry, fruits, flowers, &c. A single exception may be made, however, in favor of sewing machines. The exhibition of these in numbers, varieties and novelties, made a little world's fair of themselves.

The receipts of the treasury was early anticipated, and fell much short of our good-weather fairs; but the treasurer found indemnity here by paying off a full and liberal premium list to the satisfaction of all parties concerned. The annual account of the treasurer will have been forwarded to you.

At the annual meeting held on the 29th December, the following officers were elected for the year 1869: President, Francis H. Hibbard, Cortland; Treasurer, Morgan L. Webb, Cortland; Secretary, James C. Carmichael, Cortland; with five Vice-Presidents, the usual Executive Committee, &c.

Respectfully,

A. L. CHAMBERLAIN,

President.

Cortland, *January* 20, 1869.

Receipts.

Balance account 1867	$895 83
Receipts at June exhibition	905 60
" September fair	507 10
Life memberships	30 00
State appropriation	93 76
	$2,432 29

Payments.

Premiums &c., June exhibition	$657 29
" September fair	539 15
Balance	1,235 85
	$2,432 29

DELAWARE.

Report of the Treasurer of the Delaware County Agricultural Society for the year ending January 6th, 1869.

January 1st, 1868,		Balance on hand at date of last report.	$162 50
" " "		Received for membership, annual meeting	6 00
Sept. 29, 30,	"	Received for membership at Walton..	373 00
October 1,	"	Received for membership at Walton, ladies	53 00
October 1,	"	Received for membership at Walton, boys	16 50
		Received for membership, sale of tickets	488 21
		Received for rent of Grounds	46 00
		" from State Treasurer	258 38
Total			$1,403 59

EXPENDITURES.

January 1st,	Paid premiums awarded at winter meeting.	$60 00
	Paid premiums and expenses of a former year	28 50
	Paid men's premiums awarded at Walton..	464 00
	Paid ladies " " " ..	157 75
	Paid boys " " " ..	45 00
	Paid expenses of fair	270 96
	Balance on hand	377 38
		$1,403 59

Officers elected at the annual meeting, January 6th, 1869: President, John B. Yendes, Delhi; Treasurer, George W. Hanford, Deposit; Secretary, Porter Frisbee, Delhi.

G. W. HANFORD,
Treasurer.

DUTCHESS.

Mr. B. P. JOHNSON:

DEAR SIR—In obedience to the requirement of the statute, ordering a yearly report from the several agricultural societies of the State, I herewith present you a brief abstract of the proceedings of the Dutchess County Agricultural Society, for the year 1868. Our twenty-eighth annual fair was held on the grounds of the society, at Washington Hollow, on the 22d, 23d, 24th and 25th of September.

With a view of increasing the interest which our fairs have always secured among all branches of industry in the county, the executive committee presented a larger and more attractive premium list than had ever before been offered, and made every preparation that could add to the attractiveness of the exhibition and secure the comfort of those on the grounds.

The fair opened with the most brilliant prospects of success, and the officers of the society and the executive committee were sanguine in their expectations of being able to liquidate, in a large degree, the indebtedness of the society, incurred in building our large and spacious new hall. Our hopes were of short duration. Unfortunately, we had appointed the holding the fair in a rainy week, and, in consequence the fair was not financially a success.

The entries in every department were fuller than ever before in the history of the society. The show of agricultural implements was a very excellent one, embracing many of the late inventions and most improved machinery for the farm. The display of Trowbridge & Co., and Uhl & Husted, of Poughkeepsie, in this department, was truly excellent, and they deserve great credit for the interest they take in our fairs.

Adriance, Platt & Co. exhibited their celebrated Buckeye combined mower and reaper and self-raker, which was very much admired, The Eureka mower, exhibited by Wilber, Stevens & Co., attracted great attention. We regret that we cannot further particularize many others of the fine machines and tools exhibited. We cannot, however, pass over without mention the magnificent display of carriages of every style exhibited by Mr. W. C. Payne, of Amenia, and Fred. J. McCord, of Pleasant Valley. The dairy products were notably superior, as also were the grain and vegetables. In fruit, the display was superior. In the department of domestic industry, many articles exhibited deserve special mention for taste and ingenuity of design or beauty of execution, but our space does not admit us to specify. The display as a whole, and in detail, was most honorable to the contributors and testified to the talents of our county's fair daughters.

The display of stock was only fair. The society cannot but regret that more interest is not taken in this department, and an effort should be made to induce owners of fine stock to show them at our fairs. Of sheep there was a fair exhibition, and some superior specimens in the different classes. The show of swine was neglected.

The display of horses was excellent, and unprecedented in regard to numbers. The entries in every class was full, and in some so numerous that the judges were obliged to show them by installments. We must again regret that we cannot particularize in this department, the task is of too huge proportions to be attempted within the limits of this report.

It cannot be denied that this department monopolizes a large share of the attention of the visitors, and the trials of speed on the track always attract a large concourse of eager witnesses. The programme of Friday (the last day), the exhibition of trotting stallions, was the all-absorbing topic of conversation among horsemen. Great interest was centered in the contest for the society's grand gold medal, a premium for the best trotting stallion owned in this or any adjoining county. From the well known reputation of some of the horses entered for the contest, great speed was expected. But alas! the rain, all Thursday night, came down in torrents, and, seemingly, with a particular spite, so that, though it ceased raining late on Friday morning, the grounds and track were completely flooded; the track in some places being from six to eight inches under water. Under this state of facts, it became a serious question with the executive committee what to do with the fair. Some of the committee wished to close up the fair then and there; others advocated the carrying over the programme to the next day; while others again contended for the carrying out the programme as published, regardless of the mud and the condition of the track. This latter view prevailed, and the programme was carried out. It is needless to say the day's proceedings were a farce. When the names of those entered for the medal were called from the stand, only one out of nine entries responded, the rest refusing to show their horses in the present condition of the track. Mr. J. V. W. Doty, of Poughkeepsie, trotted his stallion Union a mile in two minutes and forty-four seconds, and to him the judges awarded the gold medal. It was a matter of great regret to the society that its highest prize was won without competition.

It is a pleasure to state that no occurrence interfered to mar the pleasure of the twenty-eighth annual fair, and thus the entire exhibition was gratifying to the visitors and satisfactory to the officers of the society, and, had the weather proved favorable, would have been a great pecuniary success.

At the close of the fair an election of officers was held, when the present officers were re-elected, viz.: President, William W. Haxtun,

Poughquag; Secretary, George Sweet, Washington Hollow; Treasurer, Thomas W. Jaycox, Wappinger's Falls; one Vice-President from each town in the county.

For an exhibit of the finances of the society I refer you to the annexed statement.

THOMAS W. JAYCOX,
Treasurer.

1867.	Receipts.	
Dec. 26.	By W. W. Haxtun's check (late treasurer)....	$37 09
1868.		
Sept. 22.	By members and entrance tickets sold.....	981 20
Sept. 23.	" " "	515 45
Sept. 24.	" " "	2,154 45
Sept. 25.	" " "	204 80
		$3,892 99

1868.	Disbursements.	
Sept. 25.	Paid premiums, as per vouchers.....	$949 15
" 25.	Paid police and clerks, as per vouchers.....	330 50
" 25.	Paid C. H. Losee, superintend't, to pay Hall pre.	783 40
" 25.	Paid printers' bills, as per vouchers.....	102 00
" 25.	Paid George Sweet, Sec., to pay general expenses.	500 00
" 30.	Paid Society's note in Fallkill bank.....	400 00
" 30.	Paid George Sweet's secretary, check in Fallkill bank.....	300 00
Nov. 6.	Paid S. H. Smith, superintendent of horses...	83 00
" 23.	Paid George Sweet, secretary, on account.....	200 00
Dec. 3.	Paid Trowbridge & Co., old bill.....	1 50
" 3.	Paid Trowbridge & Co., to pay unpaid premiums	226 00
" 18.	Balance in treasurer's hands	17 44
		$3,892 99

ERIE.

White's Corners, *March* 15*th*, 1869.

Secretary New York Agricultural Society:

Dear Sir—Agreeably to your request, I herewith transmit statement of the transactions of the Erie County Agricultural Society, for the year 1868. At a meeting of the board of directors of the society, held in June, it was determined that the annual exhibition of the society should be held on the grounds of the "Hamburgh Driving

Park Association," on the 30th of September, and the 1st and 2d days of October; but as the State Fair was to be held at that time, it was subsequently changed, and the exhibition was held on the 23d, 24th and 25th days of September.

Every effort was made by the officers to interest farmers, and induce them to compete for premiums, and to take an active part in the transactions of the society. Our efforts were not entirely without success; but owing to the fact that the society for the last five or six years had been gradually losing the confidence of the farming community, and had become nothing more than a town affair (and a very slim one at that), and also that the officers had sent blanks for statistical reports to different school districts in the county, with the promise of compensation to those who should perform the labor, and having never sent a book and volume of transactions to any so taking statistics, the society is and was generally known as a great public fraud and imposition. Owing to these facts, together with the circumstance, that on the morning of the 23d, the "windows of Heaven" opened, and a disagreeable and drizzling rain commenced and continued the three days without intermission, except to commence with redoubled force, so that on the last day it was impossible to declare the premiums in the open air, but the principal hall of the society was brought into requisition, when premiums were declared and Mr. Hugh T. Brooks delivered the annual address. No fair ever opened with brighter prospects, than did the Erie county fair, on the morning of the 23d, and it would have been, but for the weather, a great pecuniary success, as well as a profitable meeting for farmers.

Our society erected a substantial "agricultural hall," a "ladies' hall," and other buildings, to accommodate the exhibitors, costing in all, including labor, about $500, which speaks well for the officers for 1868, when we consider that they took the society without a dollar in the treasury, and about $300 debt. The annual meeting of the society for 1869, was held on the third Wednesday in January, 1869, and the same officers were elected as last year, and a degree of interest was manifested in the society that will insure its success at its next annual exhibition (reasonable allowance for bad weather being made), and place the society entirely out of debt. It was determined to hold the next exhibition on the same grounds as last year, being a central point in the county.

There is now about $100 in the treasury, which will be needed for

repairs and buildings. For a more detailed report of our finances, reference is made to the sworn report of the officers heretofore sent to you.

Yours, very respectfully,
R. C. TITUS,
Secretary.

Address Delivered at the Erie County Fair, 1868, by the Hon. Hugh T. Brooks, of Wyoming.

Mr. President and Fellow Citizens: Agriculture and the mechanic arts are the essential elements of civilization. What men are and what they become, depends mainly upon their mode of getting a living. In all countries and in all climates, human character has been fashioned by human food. Wherever nations, or tribes, have lived a wandering life, depending upon grazing, hunting, fishing, wild fruits, and vegetables for their daily food, they have remained in a state of barbarism. Not even the vital force of a religious faith, and the quickening presence of divinely inspired prophets could keep the Israelites while wandering in the wilderness, from a rapid descent to heathenism.

Just so far as nations have resorted to systematic agriculture, so far have they progressed in other departments of human life. It could not be otherwise; breakfast is the first thing in the morning. So long as that is uncertain other things stand still. The sciences, the graces, and even the *virtues*, have little to do with a *hungry* man. Uncertain and irregular supplies of daily food will hold any people in darkness and demoralization. Improved agriculture by providing for material wants has always opened the way for intellectual, social and religious advancement. The progress of the plow, from *stick* to *steel*, has marked the real progress of nations. Education an science spring from a deep stirred soil. You may safely judge any people by their agriculture. Elegant mansions have grown from good fertilizers. If you see their crops, you can guess at their houses, barns, carriages, schools, churches, social standing, and even the style of their hats, and the width of their skirts. When buildings take imposing shapes, and all the furnishings and surroundings indicate competence, wealth and social culture, you may be sure there is *good grain or grass land* there, and it has been *well tilled*!

Where you see men illiterate, awkward, shabbily dressed, and living in shabby houses, you may know they have a lean soil that barely

feeds them, furnishing no surplus for luxuries, ornaments and accomplishments. Slavery and land monopoly modify this somewhat, but the general principle I have already stated.

I have a still broader claim for agriculture and the mechanic arts. They are not only the foundation and the material of every important superstructure, but they are the constructive agencies—the great builders. Men pay homage to education, and science and art, as though they were divinities with an independent existence shedding light and lustre on mankind. They are merely incidents, outgrowths from daily avocations and practical duties. The laws of nature have been unfolded by our daily tasks. "Necessity has been the mother of invention," the great incentive to discovery. Nearly all of man's intellectual and moral growth has come from the discipline and development connected with daily toil. You are surprised at the giant strength, the towering greatness of self-made men, you cannot reconcile their great achievments with their lack of education. What, I ask, is education? Is it to lounge lazily on cushioned chairs for half a score of years, bleaching out the freshness of youth, and covering an adult form with a baby's skin? Is it to enfeeble the body, and acquire a distaste for physical exertion till infirmity of purpose and feebleness of action characterize the whole man? Is it to know six different names for buckwheat, and *not* to know that edible by sight? Is it to know all the organic substances that compose wheat flour, without knowing how to make up that expensive article into good light sweet bread? Is it to be able to classify plants, and call them hard names without knowing how to grow good cabbage and early tomatoes? Is it to know how to make latin verses, and not know how to make the ends of the year meet? Is it education to be able to cypher out all problems except the problem of getting a living? Education is the acquisition of useful knowledge, and especially is it discipline and development. It is that which gives acuteness of observation, nicety of discrimination, promptness and efficiency of action, and a mastery of one's self. All this is acquired in the busy marts of trade, in the quiet of the winter's fire side, in the hurly-burly, rough and tumble of farm life, particularly pioneer life, more often than in the dusty and venerable halls of science. The man who works his way five hundred miles into the wilderness with an ox team, a wagon, an ax, a saw and an auger, and there makes his way to competence, wealth, and general esteem, has studied cause and effect as profitably as any philosopher; has

disciplined all his powers in a school that teaches the weightiest lessons of life most thoroughly. He is a well educated man, whether he knows anything of grammar, or algebra, or chemistry, or not. Thus it is that agriculture and the mechanic arts are and ever have been the real educators of the people.

Let us not forget that in all this, the mechanic arts are copartners with agriculture. The husbandman would be powerless without the aid of those implements that mechanical industry supplies. In this department an astonishing advance has been recently made. With the aid of machinery the same number of men are accomplishing twice as much as they did ten years ago. The world has never witnessed anything to compare with the results of the present year. Marvellously large productions are now being brought into market by marvellously few men.

Here I will stop, and *solemnly* announce that *machinery* has not yet been furnished with *brains* to run itself. Somebody must stay with the farm, and keep the bearings greased, and the wheels in motion. Because father has got a "self-raker," and is bargaining for a "self-binder," you boys need not all leave the homestead for traffic, or physic, or law, or gospel. Machinery releases some of you; but don't all start at once. So vast is the demand for agricultural productions, so much does the world depend upon this America, that we have not now farm laborers enough to conduct farming in the thorough and efficient manner demanded by the wants of mankind. I have been telling you, and sooner or later you will realize it, that farm products are the *first necessity.* They are the indispensables. When too many withdraw from agriculture production is fearfully curtailed. All trades and callings are now paying the penalty, in the shape of exorbitant prices for food, for the scarcity of farm help. Boys may run away from the farm; but I warn them that starvation will follow them if too many go. A lack of agricultural laborers will enhance the cost of living; so that lawyers, doctors, merchants, speculators will be put to their wits end to pay the cost of their daily bread. *There is no dodging it*, the farming business must be first attended to.

In this country our activities are unbounded. We undertake, and we accomplish great things; but we shall have to let some matters go over for a while; a few miles of railway must wait construction for a year or two; and if there should happen to be an eighty acre lot of government land not taken up this season, I guess it won't spoil.

I was speaking of *machinery*. It won't work miracles, but it comes wonderfully close to it. It has helped the world to supply its necessities, and provide luxuries, and elegancies, and refinements. The graces are woven with power looms. I care not how humble, and simple, and common-place the implement in yonder building; if it takes one pound from the back of labor; if it shortens one moment the daily task; if it relieves one anxious thought; if it substitutes a certainty for an uncertainty, it is something to thank God for most devoutly.

Time saved from toil is sometimes misspent. But we may thank the Great Architect that he has made man progressive. The good we strive for we shall reach.

Farmers and mechanics of Erie county, you have two great occasions for thankfulness: First, that your lot is cast in the State of New York; and second, that you live in Erie county. You may not have the best land in the State, but you have hit on about the best place to put it. You are the head, or the tail, it don't matter much which, of what is to be the greatest commonwealth on the face of the earth. Your great-grandchildren will live to see the time when the State of New York will embrace a greater population, and greater wealth, than any equal area on the face of the earth.

You are in the temperate zone, where epidemics, and earthquakes, and enervating influences do not abound. Your State, in substantial qualities of soil, is, for the most part, unsurpassed; it being adapted to a very wide range of products. It has the emporium of the continent at one end, and your own Buffalo, Lake Erie, and Niagara river at the other.

Commerce is a feature of modern civilization. *Capital* is the life blood of business. *Their seat is New York!* New York, with more than the power of the maelstrom, is drawing everything to itself. You can scarce go far enough west or south to find a railroad worth anything that don't take people and produce towards New York. The commerce of the continent must mainly take this direction; and if you will reflect how immense and immeasurable that commerce must be, when our American infant gets its growth, you will see that New York, from one end to the other, must be filled up with people waiting upon each other, and doing the business of the nation and the world. I tell you that London and Liverpool will be switched off. Westward the star of empire takes its course.

The great men, the solid men, like to live at head-quarters. The

great operators, the great capitalists, with their large establishments and numerous dependents, will fix their abode here. Multitudes, who can choose their residence, will live where the rest do. Numerous lines of railroads will traverse the State. We shall have steam navigation on our canals. Lakes, rivers, and ship canals will all make business for our population, and swell our numbers. Niagara river will find out what it is made for, when its water shall be set to turning spindles and forging iron, except on the fourth of July and the Christmas holidays, when it will be let loose over the falls for sentimental people to look at.

I do not question that Niagara river will yet be one of the headquarters of the manufacturing interest in America. New England has got the start, and there is a great deal in that; but it is too far one side of the nation's thoroughfares. God has not made any *coal* to waste on purposes that can be subserved by water power. An immense manufacturing population is sure to swell the vast numbers that will here find employ in commerce.

It is evident, then, that your farming must eventually take the shape of market gardening. You must drain and improve your farms; certain that the portion not needed for city and village lots will be taxed to its utmost capacity to supply the multitudes around you with their daily food.

I will now call your attention to a few points that claim your consideration. First: Give diligent attention to fertilizers; by any and by every process, enrich your soil. The great fault, I may say *crime*, of American farmers, is their inattention to fertilizers; it is true economy to raise your land, and that speedily, to its greatest productive capacity. You pay $10,000 for a farm; with good cultivation you can raise $2,000 worth of produce yearly, at the expense of $1,000. Impoverish your soil, and it will yield less than $1,500 per annum, but the expense of raising the crops will be nearly the same. You will then get only $500 as interest on your investment, instead of $1,000. In other words, you have sunk one-half of your capital for the want of manure. Where the soil favors the growth of clover, it is perhaps the cheapest fertilizer, if you stimulate its growth by plaster, lime, ashes and animal manures. You have in your great city a never-failing supply, if you will see to it that the sewers *flow the right way*, and all the night soil, offal, &c., are carried out to your farms. Like the Chinese, you must save everything that helps grow human food. You will not enter largely into

stock growing, but what you keep should be of the very best kind. Start right and keep improving. Animals reproduce themselves and their peculiar characteristics in their offspring. Whether it be beauty or deformity, weakness or strength, health or disease, it is an inheritance for the progeny. Many instances could be mentioned to show that the law of hereditary descent extends to minute particulars. A man had his little finger crushed by an accident, his sons had distorted little fingers. A cat's tail was injured and her kittens came with distorted tails. Horses marked during many generations, with red hot irons, in the same place, transmit traces of such marks to their colts.

Youatt, speaking of horses, says: "There is scarcely a disease by which either of the parents is affected that the foal does not often inherit, or at least show a predisposition to it. Even the consequences of ill usage or hard work will descend to the progeny. Blemishes may not appear in the immediate progeny, but frequently do in the next, or even more distant generations. Hence the necessity of some knowledge of the parentage, both of the sire and dam."

Certain peculiarities may lie dormant for a generation or two, and then reappear in subsequent progeny. A French writer says if there is not inheritance of paternal characteristics, there is at least an aptitude to inherit them, a disposition to reproduce them, and a transmission of this aptitude to descendants among whom these traits will sooner or later manifest themselves. Breeders should use the very best sires, and the very best dams. Any defect, or any tendency to a defect, is a plague-spot ready to burst out at any time and impair the value of successive generations. Use well bred animals, for the ability to transmit *good points* essentially depends upon having inherited them through a long line of ancestors, that excelled in the characteristics desired.

Health and hardihood are essential requisites. A compact, symmetrical form, mature age, good temper, and freedom from defects, should be insisted upon. Farmers, let it be your ambition by careful breeding and diligent attention, to multiply good animals and suppress the bad ones.

If there is one thing which I have need to say to farmers more than anything else it is this. Make your calling respectable, your characters honorable, and your families comfortable and happy. Convince your wives, your sons, your daughters, and the rest of

mankind that farming is something besides dust, drudgery and vexation.

If you get a few dollars, don't use it to make the first payment on another farm, running in debt for the rest. See if your wife would not like a new dress, or a new carpet; indulge in a respectable carriage; supply the domestic department with a good garden; cultivate all the small fruits that grow in your latitude; provide apples and pears the year round, adapted to all the various purposes of eating and cookery; lighten every task by improved utensils and machinery.

Give heed to your *social* duties; chiefest of earthly pleasures is the loving intercourse of friends. Better than all eastern treasures, and all western gold, are the sweet courtesies, the substantial kindnesses of life. Turn where you will, there is no such neglected spot as the social domain. Religion has its teachers, its ordinances, its doctrines, its institutions, its times, seasons and opportunities; science, literature, and art are foster children of the State; thus the intellect and the morals are guarded and provided for, but the *social* faculties, alas! untaught, uncared for, run riot in the wild luxuriance of a rich but perverted nature. I speak from a deep sense of responsibility when I say cultivate the social faculties. Let intercourse with neighbors, relatives, and friends have a place in your arrangements as honored and inviolate as business, science, or any other interest. It is a false philosophy that always connects profit with money making.

Strive to elevate yourselves and all about you in the scale of being, missing no opportunity of making those about you happy, and you will not have lived in vain. As farmers, strive to make your business attractive, and so draw to it ambitious young men who are now repelled by its rugged features. Remember that you control the fountains of human life, and so be diligent in business and discreet in all your arrangements.

ESSEX.

To the Secretary of the New York State Agricultural Society;

The annual fair of the Essex County Agricultural Society for 1868 was held on its new grounds, at the village of Westport, on Wednesday and Thursday, September 23d and 24th, and adjourned the third day to October 6th, on account of stormy weather. The attendance

the first day was not large, and it was devoted principally to entries, and arranging of stock and articles for exhibition. The second day the attendance was quite large, and the day passed off most successfully. The third day opened with a severe rain storm, which continued all day. About eleven o'clock, A. M., no signs of clearing off, the premiums were declared, and the fair adjourned to Tuesday, Oct. 6th, which day was quite pleasant; but as all the articles for exhibition had been removed from the ground, the day was devoted to a display of horses and trial of speed, which proved entirely satisfactory to those present. Had it not been for the unfavorable weather of September 25th, I think I can safely say the fair of 1868 would have been more successful than any previous year; and, notwithstanding the rain and necessity of adjournment, it was all that could be expected. The number of entries was quite large. Floral hall in particular was handsomely decorated, and well filled with beautiful specimens of needle work, embroidery, and domestic industry, and, in fact, every conceivable article of woman's ingenuity and skill.

In fruit there was a large variety, and some very fine specimens. The same can be said of vegetables, which were all of the very best quality. There were also quite a number of entries of butter, cheese, maple sugar and honey, which were declared by the judges to be of excellent quality. A general assortment of farming implements was on the ground, and received much attention. There was a fair show of cattle and sheep. The exhibition of horses was large and fine.

Essex county, strictly speaking, is not an agricultural county; much of its surface being mountainous, and too rough for cultivation, but no less valuable on that account, as it contains rich deposits of iron ore. Consequently a large proportion of its inhabitants are engaged in mining, and the manufacture of iron. Yet we have some excellent farming lands and many good farmers, and an increased interest seems to be manifested in the advancement of agriculture in all its branches; and it is hoped that the interest manifested in this direction will prove but a stepping stone to future years of success.

Notwithstanding the unfavorable weather of the last day of the fair this year, our receipts for the year, including appropriation from the State, exceeded our expenses $213, which will help to reduce the debt of the society occasioned by the large outlay in building, fencing, and fitting up the new grounds; and we hope the close of another year will find us out of debt, and a balance in the treasury.

The annual meeting was held February 2d. The following are the names of the officers elected for 1869:

Thomas Walton, President; B. B. Richards, Secretary; Edwin B. Low, Treasurer; and one Vice-President for each town in the county.

Yours respectfully,

B. B. RICHARDS,

Secretary.

FRANKLIN.

Malone, N. Y., *December 9th*, 1868.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society*:

Dear Sir—Herewith we transmit you a statement of the transactions of the Franklin County Agricultural Society for the present year. The seventeenth annual exhibition of the society was held on the society's grounds at Malone, September 29th and 30th, and October 1st, 1868. The attendance was unusually large notwithstanding the weather the first day was unfavorable. The exhibition in all departments was as good as any previous year. Our farmers and mechanics have taken a great deal of interest in the society for the past few years, and the society is at the present time in a very prosperous condition. During the past season we have erected a new floral hall, sixty feet in diameter, octagon, with spacious gallery, all neatly finished, which makes quite an ornamental building, and having been well filled during the fair with fancy articles, paintings, flowers, &c., was quite an attractive part of the exhibition.

Cash on hand, time of last report	$1,379 25
Received from State	62 50
" " rent of grouud	45 00
" during fair	2,984 20
	$4,470 95

Disbursements.

Expense of building floral hall	$2,030 80
Paid premiums	1,354 00
" labor during fair, printing, &c.	911 15
Cash on hand	175 00
	$4,470 95

CLINTON STEVENS, *President.*
W. G. RICHEY, *Secretary.*
M. S. MALLON, *Treasurer.*

FULTON.

JOHNSTOWN, *February* 3, 1869.

DEAR SIR—Our annual fair was advertised to be held on the 22d, 23d and 24th days of last September. The first day was very rainy; the second day was rough in the morning, and I thought it would be a failure, but we had a very good display in some things. There was a good display, for the day, in cattle and horses; a very few sheep. The ladies department was very good. The display of fruits and flowers not very large. The mechanical department was not very largely represented. The receipts on the account of the weather being so rainy on the first day of the fair were not satisfactory. I hope you will excuse the lateness of the report.

I remain yours,

J. J. DAVIDSON,

Secretary.

GENESEE.

BATAVIA, *December* 28, 1868.

B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

SIR—The undersigned begs leave to report that the Genesee County Agricultural Society still continue in the same prosperous condition that has marked it for the past three years.

The annual cattle show and fair was held on the grounds of the society at Batavia, September 15th and 16th, 1868, and was well attended as the receipts therefor will readily show. The display of stock was much larger and better than formerly, and evinces an increased interest in that department. The exhibition of agricultural implements was much better than heretofore, and well worth looking at. But so far as the articles of domestic manufacture, and fancy articles were concerned, it was decidedly below par. The second day of the fair was devoted to horse trotting, &c., and a splendid exhibition of all sorts, sizes, varieties and conditions of the equine and asinine quadrupeds was presented for inspection and review.

The following is a statement of the pecuniary condition of the society.

RECEIPTS.

Cash on hand January 1st, 1868	$225 00
From State	224 25
Receipts of annual fair, Sept. 15th and 16th, 1868	1,839 00
	$2,288 25

Expenditures.

Paid premiums	$1,273 50
Permanent improvements	390 00
All expenses for the year 1868	440 58
Cash on hand to balance, December 31st, 1868	183 79
	$2,288 25

In addition to the foregoing it is proper to say, that the society now own real estate and other property, the value of which is over $3,000; and no demands exist against us whatever.

All of which is most respectfully submitted.

ADISON FOSTER,
President.

O. R. Clark, *Secretary.*

HERKIMER.

The annual meeting was held at the Court House, in Herkimer, on Saturday, January 9th, 1869, and was the most largely attended of any for many years. The treasurer's report gave the following as the condition of the finances of the society.

Amount on hand last report	$795 61
Received from State appropriation	140 00
Receipts from other sources	2,459 50
	$3,395 11
Premiums and expenses	2,676 75
Balance	$718 36

The following persons were elected officers for the ensuing year: President, Sanford Eysaman; Treasurer, Zenas Greene; Secretary, H. Clay Hall.

The executive committee met on February 15th, 1869, and completed a Premium list for the year 1869, as large as any ever offered by the society.

The annual fair of the society for 1868, was appointed to be held in September, but as has been the case frequently before, was postponed from stress of weather, until the first week of October. Ample provision was however made for the care of articles on exhibition during the recess, at a large expense to the society, but greatly to the satisfaction of exhibitors.

The weather on the three days of the fair in October, was favorable, and the attendance was very large, especially upon the third day.

The display of neat stock was fine, especially in grade cattle, and the display of fruit and vegetables exceeded that of 1867. Over $1,500 was distributed in premiums, in addition to books and medals.

H. CLAY HALL,
Secretary.

GREENE.

Report of the President, Secretary and Treasurer, of the Greene County Agricultural Society, for the year 1868.

The receipts of the Greene County Agricultural Society, for the year 1868, amount to eight hundred and thirty-three dollars and fifty cents ($833.50). The amount received by voluntary subscription is two hundred and sixty-six dollars ($266). The amount paid for expenses of the society is five hundred and fifty seven dollars and forty-eight cents ($557.48). The amount paid and to be paid for premiums, is six hundred and thirty-five dollars and fifty cents ($635.50). You will find attached a full list of the premiums awarded by the Greene County Agricultural Society for the year 1868.

Peter P. Snyder, President; Geo. W. Russ, Secretary; Edwin E. Darby, Treasurer.

ANNUAL ADDRESS, BY SOLON ROBINSON, AT THE FAIR OF THE GREENE COUNTY AGRICULTURAL SOCIETY.

Mr. President, and Gentlemen of the Greene County Agricultural Society:

By the special invitation of the officers of the Greene County (N. Y.) Agricultural Society, I have come to deliver your customary annual address, at this farmer's festival; a holiday which comes entirely too seldom in America. It should be more appreciated. How shall I make this talk to Greene County farmers practical, interesting, instructive?

I am known to some of you as an agricultural writer, and as one who has frequently spoken before agricultural societies. Yet I am a stranger here. I know nothing of the peculiarities of farming in this county. There may be some good farmers, which I could point to as models, if I knew them. There may be others which I ought to skin as badly as they skin their farms, and hold them up as examples

to be avoided. Let them rest easy. I don't know them. I cannot therefore raise a laugh, at some miserable farmer's expense. Indeed I have nothing for you to laugh at. I have only a serious talk for you to listen to and think about afterwards. I hope to be more instructing than amusing. It is my earnest hope that I shall not be tiresome to any one beside myself. I ask your indulgence while I read what I have to say. I should have preferred a plain talk with you, answering your questions; thus making my discourse local. Now it must be more general. And what shall it be? I have selected a theme seldom treated of by those who make agricultural addresses.

Geology, is the science that treats of the formation of the earth. It is not often taught in common schools—it is still more seldom studied by farmers. Perhaps some of those present will now ask if I am going to give a lecture upon this subject, and if I reply yes, will tell me that geology is something that don't interest farmers. My friend, if that is your opinion, I intend to convince you that you are mistaken—that farmers are deeply interested in this science.

Every person who owns, or occupies land, if it is only a garden spot, should be acquainted with its formation, and what constitutes productive soil. This is what geology teaches. But I am not going to teach it; I am only going to throw out some hints which will make you think more upon the question of how the soil is formed—how it is abused—worn out—exhausted of its fertility; and how it may be renovated; or what is better still, kept always in its primitive condition—always as good as when first cleared of timber. This I believe possible and profitable. This is good farming. If there is a farm in this county, that is not as profitably productive as it was when first cleared it has been badly farmed. Its owner has never studied geology. By it he may learn that no soil, however formed, can bear eternal cropping, and carrying away its products, without destroying its power to produce. Yet I believe this very system is practised in this county. I believe meadows have been mown, until they are not worth mowing. Although they still give a small yield of hay, it is worthless stuff. It only serves to fill up—it sells for a mean price, because it will neither make fat nor muscle; and for manure, one ton of clover is worth five tons of trash gathered from a poor old hide-bound, worn out meadow. Growing such grass, or mowing such meadows, is not good farming No man can afford to mow land that produces less than two tons of good rich hay per acre, and every man can grow that more profitably than he can grow less.

If he grows less he is not a good farmer. He has not studied geology. If he had, he would have learned that whenever the surface of the earth has been worn so as to be unproductive, he has the same source of fertility a little lower down, which can be reached by the subsoil plow, the spade, and underdraining.

Geology is not an abstruse science, which farmers, or farmers' children cannot study. It is not alone for colleges and learned professors. It is for the common people—the class most deeply interested—for it is the earth that produces all food, and its cultivators are the source of all wealth. I feel proud that I have always been identified with American farmers. I have used all kinds of farming tools with my own hands, from the old Berkshire plow to the finest cast steel; and from the sickle to the reaping machine; from the flail and willow fan, up through all the grades to the present perfect machinery. But when I was a boy, I never learned what made the straw stand upright, or that geology had anything to do with holding up heads of grain, to ripen their food in Heaven's sunshine. I had no books nor teacher to tell me these great truths. Do the children here have any better opportunity in their common schools? Do they know that one of the hardest flinty rocks is used by nature to give this strength to the straw? Do they want to know how this quartz was dissolved, and spread upon the growing stalks? Then the parent or teacher should be able to answer: "That alkali has the power of dissolving the fine particles of flint, portions of fine sand, converting it into silicate of potash, a liquid that the plants can take up and digest, as easily as we can digest our food."

"And whence comes this alkali?" they will next inquire. From ashes, the most readily, for they afford much potash; also from lime; and it is one of the offices of stable manure to furnish this indispensable ingredient, in the manufacture of silica, to give strength to the straw, as well as to give potash to all fruits and grain—in short, to make the earth productive, where it otherwise would be barren.

If we are rational beings we shall all realize that the foundation of civilization is a productive soil; and that, unless we would revert to savagism, we should exercise all our skill to preserve its greatest fertility. How can we exercise such skill without a knowledge of what are the constituents of the ground we cultivate. As we improve in this knowledge we shall advance all other conditions of life.

It is for this that I ask you to think a little upon this question of geology for farmers. Since soils are so various in their character,

they should be studied geologically as well as chemically. The farmer should be able to determine at once whence his soil is derived; since all comes from the decomposition of rocks; and where that is most recent, there the earth is least productive. Indeed, in the first stage, the earth is only fitted to produce the coarsest plants, such as mosses and ferns, which do not sustain the life of a single race of animals; although a few of the most progressed mosses are used in cookery. But naturalists declare that ferns are absolutely worthless as food for any thing living—that they do not sustain insect life—that nothing feeds upon them—nothing eats them except as a sort of idle pastime, as we sometimes chew a bit of wood, leaf or bark. Yet how often do we see meadows where nearly one half of the bulk mown, cured, carted and stored up for winter fodder is composed of ferns—familiarly known, when large, as "brakes." Not only are these plants worthless as cattle feed, but equally so for manure. I doubt whether ten tons of fern hay in the compost heap, are worth as much as ten hundred pounds of clover. Upon the farm where I spent my boyhood, I believe more tons of ferns than clover were cured for hay every year. Are there any such in this county? If so, they sadly need reconstructing by under-draining, frequent plowing and rich manuring, until they will grow more profitable crops.

It is a curious fact that the geological age of ferns is not an age of animals. There was no sustenance for them. We should learn a lesson from this great geological fact. The most profuse flora that has ever clothed the earth, was in the carboniferous era—the period preceding the formation of our coal beds. Yet no flock nor herd could have lived upon those greenest of pastures, because the herbage was precisely of the same character that we now find in abundance upon some of the farms of men who grow ferns instead of clover.

The plants most useful to man preceded him only a brief geologic period, and it is very certain that growing this class does not exhaust a soil. It will progress a primitive earth to the highest state of usefulness. The more the earth produces the more it will; and the more it is worked the richer it becomes; provided you do not carry off the crops until its strength is exhausted; nor expose it naked to the sun, and wind, and rain, which never enrich the earth while it lies dormant.

Plow in the sunshine, air and dew, and mix them with the earth while you pulverize it finely, and it will improve.

Let me impress upon your minds this one great geological fact: In the beginning, there was no soil—nothing like what we call dirt.

This has all come from the disintegration of rocks; and fertility depends upon how far this is advanced by natural causes, or by the aid of man's skill. And this disintegration is continually progressing. How can the earth become unproductive? It is only the badly managed fields that wear out—those which have been robbed of their fertility by carrying away all the crops—as literally starved as any old horse that some cruel owner has turned out to die upon the commons. Yet such worn out land can be renovated with manure, or lime, ashes, plaster, salt and fine pulverizing. There are many farms which have inexhaustable beds of muck. In these the farmer has all the manure he needs. He may go on with his skinning process of selling all his hay and straw, keeping but few cattle and making less manure than he ought to use upon a garden spot, if he will make manure out of his muck beds. You need not tell me that you have tried muck and proved it of no value. If you failed it was because you did not understand geology. It was a failure through error, not fact. Some muck needs composting with lime, salt or animal matters, to change its crude nature, turning it into manure or food for plants.

There are several good books upon muck and its uses, and how to prepare it. Some swamps are filled with peat, which is naturally better for fuel than fertilizing. In its natural state it is no better than saw-dust or tan-bark for manure; and some of it is as naturally destitute of fertilizing power as pine saw-dust, which is nearly worthless. Perhaps it was such as this which you used, and failed. If so you need to know a little more of the science of geology. It is only by gross mismanagement, and inattention to nature's immutable laws, that any land should ever become unfertile.

When you have worn down the Catskill mountains, and used up all their substance in growing food crops, you have not even made a beginning of wearing out the earth. The great source of fertility will never be exhausted. The more you grind these rocks the more they will produce. Plow deep, you cannot cut through the crust, nor exhaust the source of fertility. You may mismanage it, and make certain portions unproductive; not all. Let us reflect a moment. What is the thickness of what we call the crust, or outside coat of this globe. Pile up a thousand sheets of paper to represent the earth; remove one, and it is comparatively equivalent to removing four miles depth of the earth's surface. The deepest mine ever dug, does not equal a scratch of a pin upon your body. The finest portions of soil are volcanic ashes. This is most productive. Next, alluvion of

rivers, or bottoms of drained lakes. Such is the grand prairie of Illinois, and the Mississippi bottoms, where a hundred successive crops of Indian corn have not impaired the product.

As a general thing, ferruginous soils are not productive. Sulphate of iron, in excess, renders land barren until exposed to the air and heavily limed. Yet iron is beneficial to orchards, particularly pears. Blacksmith cinders are sometimes used with great advantage. They soon decompose in the air, earth and moisture, and are absorbed by plants, and eventually the iron exhibits itself in our blood, and we grow strong upon the waste of the iron workers' forge. So in time the farmer will eat up his old plows and harrows. It may be you will think it a hard sort of diet, but I assure you it is wholesome.

In arable districts, we find what we suppose to be primitive rocks of the plutonic order, which includes granite, gneiss, porphyry, hornblende, trap, quartz, schist, etc.; but as a general thing wherever the land is most arable, the rocks are of a secondary character; and whenever the earth is in the condition that we call soil, and that of the most fertile sort, the rocks have not only been reduced by the first process of disintegration, but by a great many subsequent ones, until the particles are so perfectly comminuted, and those of the various rocks so blended and triturated with the ashes of vegetable growth that no one but a skillful analytic chemist can separate the constituents. Even then, he will fail to trace them back to their primitive state.

"Hard as granite," "eternal as rocks," are common expressions. Yet there are vast tracks where the granite has become soft as clay or sand. It is so upon Manhattan island. This is particularly the case with gneiss rock, which is of a stratified, softer character, than compact, or blue granite. Connecticut and eastern New York, are made up almost entirely of decomposed gneiss, which contains much potash, and that enriches a soil which looks coarse and unproductive. What is wanted in all cultivation, is fine pulverization. The best natural soils are those finest pulverized, and intimately blended; where all the different minerals have been mixed together. Hence the richness of alluvions. And these are most valuable where the best kind of plants have grown the longest, and thus progressed the minerals through the refining power of vegetation; fitting them for the production of wheat, fruits, domestic animals, and absorption into our own bodies. 'Tis thus of earth, that man is formed. By what minute atoms of a mountain of limestone, do we get our bones! And of

how much value are bones for future progression through plants and animals, some of us have learned in the use of bone manure—phosphate of lime.

And have you ever reflected how that mountain of limestone was formed? The theory is, that it has all progressed through living animals, in the same way that we know at the present time the waters of the ocean are progressing through the minute coral animals into reefs, rocks, and submerged mountains of limestone. So on land we frequently see vast beds of marl in all stages between perfect shells and solid rock. In the St. Augustine region of Florida, the only visible rock is composed entirely of broken shells, cemented together so firmly as to make a good building material, hewed into shape with axes. Here we know that the whole mass was once alive, and in some of the older formations of limestone we can discover the same truth. We can thus see the crude materials of the earth's crust, progressing toward a condition that will fit them for absorption into the human system, through such food plants as we consume, either directly, or in the meat of various animals, which are only a verification of that great truth, that "All flesh is grass."

If an animal, in all its life, should eat nothing but milk and grass, we should find that the great chemical laboratory of nature had still converted a portion of this liquid, and watery food, into masses of lime, as solid as the corals or shelly animals. And these bones being thus progressed, are far better fitted to enter again into similar component parts of living animals, than are the same substances when found in a crude state, as they exist in nature. For the same reason the potash of plants is more valuable for new plants than the potash of granite rocks, in which it exists abundantly. But these when sufficiently pulverized, become fertile, as well as lime rocks and slate.

Lime, whether carbonate, sulphate or phosphate, is generally useful to all cultivated crops. Yet some magnesian limestone, burnt and applied to soil, has proved detrimental for several years. I believe the best lime for farmers comes from oyster shells, or marl, which is a product of small shells. Limestone clay lands are always productive; witness the blue grass region of Kentucky and other western States. The alluvial portions produce wonderful crops of Indian corn, and will, some future day, give a great yield of sugar, from beets; which I believe will yet prove a staple industry of American farms, as it has in France and Germany. One of the curious facts connected with this great Kentucky limestone region, is that the

rock in many places appears to be formed of a mass of shells, cemented together. These, or their forms, are often traceable as though imbedded in a plastic mass which has hardened into limestone. Sometimes the rock looks as though the animals had been broken or coarsely ground, and mixed up and thus solidified, by great pressure. When this rock is decomposed and becomes soil, can any one doubt that such a mass of matter, once living animals, should be more fertile than the decomposed gneiss or any other primitive rock that had not undergone the progressive stages of vegetable and animal life, by which particles are reduced to the finest possible condition? It is this condition of elements that accounts for the wonderful productions of the principal western States. And the same thing will continue their fertility, in spite of bad farming, so long as nature continues the disintegration of this vast mass of ancient animal matter.

Decomposed argillaceous rocks, particularly when micaceous, make good grape soils. Witness the vineyards around Crooked Lake, N. Y., where the vines grow so finely among the mass of broken slate of those steep hill sides. Mica affords potash, which grapes must have, and potash is also one of the best manures for many other crops. It is a prime necessity in growing wheat; and wheat, of all the things grown for human food, is the most important; because it is the greatest brain producing food consumed by man. All great wheat eating nations are in advance of those who subsist mostly upon coarser food. Yet the area capable of producing wheat, is extremely limited, compared with the whole surface of the earth, and is lessening annually; for thousands of farms which once gave great wheat crops, yield them no longer. In many cases, the power to produce this excellent grain has been exhausted by injudicious farming. We are apt to speak of wheat as a crop peculiarly suited to "new land." As you understand the term, so it is. But that is not new land. It is only newly cleared of timber, and is filled with potash, which the wheat must have. New land is the detritus of rocks, in its first stages, when it only grows ferns and mosses, or other plants that afford no food, not even a nut for a squirrel, or berry for a bird. New land is worth nothing to man until further progressed; and when just right for the wheat grower, it is soon rendered by bad management, wholly unproductive. Yet a properly cultivated field will never become exhausted, although it will not forever continue to yield grain crops, nor any other plants which are harvested and carried away from the land, without restoring

to it any of the waste portions or their equivalents. But a field will always retain its original fertility, and give support to man and beast, if all that is taken from it in grain or grass, or roots, be restored to it in excrementitious matters.

The reason why any soil has become exhausted, is because it has been abused. To restore it again, in many cases only requires us to look for a new soil underneath that which has been robbed or worn out. By increasing the depth of the plowing, fertility is often restored. As a general thing, to bring it back to the condition of good wheat soil, it will be necessary to add the mineral elements that have been carried away, particularly lime and potash; together with humus, made from decayed vegetable matter, or by animals. Lime, either carbonate, sulphate or phosphate, is a necessity upon any soil that has formerly grown wheat, to bring it again into a productive condition. All cereals, wheat most of all, and all animals, both in their milk and bones, exhaust land of phosphate of lime, until it will not grow wheat.

Five hundred pounds of bone dust upon an acre, has often doubled the yield of grain; and the same weight of salt has quadrupled the growth of grass. Some farms are almost worthless for grazing or mowing, unless annually dressed with about one hundred pounds per acre of plaster (sulphate of lime.)

In some sections, farming could not be profitably conducted without lime. Indeed, many of the worst worn-out farms in Pennsylvania, Delaware, Maryland and Virginia, have been restored by lime, and are now very productive in wheat. The first step toward restoration, if the soil is clayey, is drainage and deeper plowing. In all cases it should have a more perfect disintegration, a finer and deeper tilth. The next step is to get the land in grass or clover. There is no other way by which a grain crop can be manured so effectively and cheaply as by an inverted sod. But it must not be a bare one, which has been mown down to the surface, and then gnawed still lower. Let the sod bear a full crop, all that it can be made to produce by a dressing of manure, or some special fertilizer, and turn that under, and its decay will produce corn, wheat, potatoes, turnips, fruits, or any other crop desired.

A farmer of Warren County, New Jersey, has said to me since I wrote the preceding part of this discourse, that many worn-out farms in that county have been renovated by the use of lime and clover. He says: "We can now grow wheat or any other crop, and our land

produces more than twice as much as it did before we commenced using lime and growing clover for manure. It is the cheapest fertilizer ever applied. We have also learned the value of nature's manure beds, the swamps. Besides doubling our grain crops, we are now able to keep twice as much stock as formerly, and keep it better, and therefore our supply of animal manure is not only larger, but far better in quality. By this system, instead of wearing out our farms, they actually appear to be growing better and better every year. If not sadly abused, our soil would never wear out. Whenever you see an impoverished farm, you may be sure it has been robbed."

How to retain the fertility of a wheat soil where it exists, is perhaps more important than how to restore it where it has been abused until it is no longer productive. The importance of this question will become more apparent when we consider that a good wheat soil is good for almost every other crop necessary to be grown, to advance our condition in the scale of civilization.

It is not the mere matter of wheat bread that elevates a wheat growing people. It is because their soil is generally productive of other cereals and nutritious vegetables and fruit, the growth of which enhances the comforts of life, and all that makes our stay upon earth desirable.

It is no wonder that it was long ago written by a wise man, that "bread is the staff of life," when we cast our eyes over the world and see how much of life rests upon that staff.

It is not necessary that man should live by bread alone, because wherever the soil is capable of producing breadstuffs in the highest perfection, there the people can enjoy rich fruits, and the best of meats, in greatest abundance.

Upon such a soil, too, except in the early period of its occupation, the people will be mainly well housed, full fed, and finely clothed, and surrounded with ample conveniences and comforts of life—some of which we will talk about by and by.

Let it be borne in mind, that the growth of wheat by any nation of people, to such an extent that all can be fed upon it, not only promotes all that adheres to civilization, but that it is one of the strongest evidences that civilization is advancing, and the people as a whole are improving in morals, intelligence, religion and happiness.

This is proved by facts, patent to every observer, throughout all the wheat-growing and wheat-eating States of this country. Also in the fact that no nation of barbarians are wheat growers. Its growth and

use belong to those who cultivate the peaceful arts. Where wheat comes in, savagism goes out. Contrast the character, comforts, homes and general appearance of the people of a wheat-growing country, with those of a people whose principal diet is of coarse grain; or crude, watery roots; or the flesh of wild animals; or that of the very lowest and most filthy one which man has domesticated, and you will need no other argument—no other inducement, to urge you to exert all your energies to keep this a wheat producing country.

Now, what constitutes a good wheat soil?

It is simply a really rich loam, where clay predominates, and water does not stand upon the surface, nor stagnate in the subsoil. All attempts to grow wheat upon land that is so flat, and has a soil so tenacious that the surface water does not readily drain away, or only settles into the subsoil, no matter how rich and how perfect in every other particular, will bring disappointment oftener than they will wheat. Yet such land, when underdrained, is the most valuable.

Some land has a dry surface, but retentive subsoil, which will give a good yield, whenever the season happens to suit its peculiarity. Such land always pays for underdraining.

As a general rule, we may say that clay lands are the best for wheat. But we may be well assured that such land requires a great deal of working, even when it is thoroughly drained. Indeed, the more it is plowed and finely pulverized, the better. Some wheat growers in Europe find their account improved by six or eight plowings.

Is it not time for the whole people of America to be aroused to the truth, that as a nation of farmers we are pursuing the same course that has destroyed, in the wasteful culture of tobacco and cotton, land enough for an empire? For it is not alone those crops that wear out the soil. They have worn it most rapidly—most visibly; but there is a broad field where neither cotton or tobacco ever grew, that has been shamefully abused by those who should have cultured it with the greatest care.

Counting the age of America, from the time our ancestors landed in Virginia in 1607, or at Plymouth in 1620, how new, compared with China, it must appear. Yet, compared with that country, how worn-out and exhausted of fertility our country has become. How this fertility can be restored, is now the most important national question. It is one that comes home to more hearth-stones than any other. The "reconstruction" of the seceded soil is of far greater importance than the reconstruction of any branch of political power or "policy."

How this reconstruction is to be effected, is the great question. It will intrude itself into the family circle of more than half of the farmers in one-third of the States.

In my opinion the "how" will come, whenever they acknowledge Grass as King. Where he reigns, there the bovine, ovine and equine races live; and man, and the crops that sustain him, all flourish, and the earth is glad. Under this head I would include clover, though not properly one of the grasses, yet one of the greatest food plants for domestic animals, and one of the best renovating crops ever grown. From one peck of timothy or clover seed, or even less, sown upon an acre of ground, you may get one hundred and sixty loads of rich compost manure. Each square rod would furnish roots and stalks to fill a one-horse cart, and this turned under by the plow, will decay and fertilize the ground more evenly and perfectly than a load from the barn-yard—a load of manure to every rod of surface.

And here is another serious question for a large number of farmers. In all the old States we have destroyed the forests, to such an extent that we have not timber enough for our necessities, except purchased at prices which are burdensome to those who obtain all their means to purchase from the cultivation of a sadly abused soil.

This universal sweeping away of forests has greatly affected the climatic condition of the country. It has grown arid and less productive; bleak and more uncomfortable for man and beast, and less healthy. Mill streams have dried up, and mills gone to decay. But worst of all, the shelter of the birds being destroyed, innumerable noxious insects have increased, until we are constantly in danger of famine through their depredations, upon land no longer productive enough to withstand their ravages. We have already lost several varieties of fruit, either from insects or exhaustion of soil, or change in the character of the climate, or all combined, and our food crops in all the old States are so meager that the people would starve if they did not find supplies in other regions where the hand of the destroyer has not yet exhausted the land of its original fertility.

The importance of planting trees to produce fruit, timber, fuel, shade, shelter, and to promote health, is no longer to be ignored. We must reclothe our hill-tops with forests to break the blasts of winter, which freeze the fruit trees in the vales below. We have destroyed the natural protection of our arable fields. We have cut away the trees from rocky hillsides, from ravines and broken waste spots, which are nearly worthless for all other purposes beside growing fuel

and timber. We must begin to plant in this generation, or the evils will come upon the next with greatly increased force. Let the question be looked at now, as it is looked at in Europe. Along all roads, public and private, forest trees should be planted. The roots and shade may take up some of the strength of the soil, but the leaves will give back a portion of it, while the protection and value of timber will more than pay all damage. Besides, some trees do not injure the crops to any great extent. This is the case with locust trees. Grass grows in their shade more luxuriantly than anywhere else.

In all New England, and portions of this State, there is room enough to grow forest trees where the land is unfit for cultivation. Even the veriest sandy wastes have been planted with seeds of pine, and have proved more profitable than the cultivation of adjoining farms of undoubted fertility. Every farmer who has ever planted a pine tree near his house, has made the most profitable investment of labor ever applied to his land, for he has increased the saleable value of the farm five hundred dollars for a single tree. There are others, also, planted by the roadside, which add ten times their cost to the value of the adjoining land.

May we not ascribe, in a great measure, the inability of farmers in Connecticut, Massachusetts, and part of New York, to grow wheat, to the denudation of the hills, and the loss of the sheltering woodland, that once gave protection, and by its influence enabled them to grow this necessary of civilization. To show the importance of sheltering trees, we may note situations where they have been cut away, where wheat fails, though the soil is not exhausted, or although it may be well fertilized by stable or other manures. Still it does not produce wheat. Why? Because it "winter kills."

We must realize the fact that our fruit trees are not hardy. Even the apple, which is the most so, has nearly died out of Vermont, and is gradually perishing in all the Northern States, just as peaches have already perished.

We must learn that fruit trees, and all of our small fruits, need shelter. It is true, they do withstand the winter exposed to all its rigors, and so do our domestic animals. Yet who will argue that either are better without protection, and not likely in the end, either in parent or progeny, to succumb for the want of it?

Look at the stock seeking shelter in the woods from piercing winds. Can we learn a lesson from these animals, dumb brutes

though they are? See how they gather in sunny nooks, or behind rocks and clumps of bushes. Be assured that some of our crops would do the same, if they possessed the power of locomotion. Even our hardiest winter grains are noted for being most productive "under the woods." That is, where there is a dense belt of timber upon the coldest sides. Are not such situations sought for orchards? In truth, shall we not say that every crop grown, every field we cultivate, even where used for pasturage, is better for this woodland protection from northern blasts, which are often blasting in their effects.

I have recommended trees by the roadside. I recommend good roads still more earnestly. In a neighborhood where they are neglected, you will find a shiftless population and the land deteriorated in value. As a general rule, our way of managing the public highways belongs to a by-gone, semi-barbarous age.

Some future generations will look back upon this, full of wonder at our system of making roads, to see how we climbed hills, when we might go around them; and how we labored to fence roads for the very poor economy of pasturing them. Our children, or their children, will learn to make roads comparatively level, and of materials that will not wash away in every shower; and they will find it economical to grow grass and trees upon the borders; and that road fences are enormously expensive, and worse than useless—they actually encourage men to steal. What else is it but stealing, if I come upon your land and gather the crop there growing?

The right to travel the highway is all the right I have. If grass, fruit, or any other product of the soil grows by the side of the path, whether upon one side or the other of the fence, it belongs to whoever owns or occupies the adjoining farms. Fencing the roads therefore, tends to encourage people in the extremely unprofitable and dishonest practice of letting their cattle run at large, to steal grass from their neighbors.

In many sections of the country, it would add to the value of farms, if the roadside walls were broken up, and the materials used to macadamize the track, or build drains to carry off water from the road. This would be practical economy, as the expense of fencing would be lessened, and the highways improved.

Wherever we find good roads prevail, as the rule of any country, we generally find prosperous farmers; with schools and churches, in a flourishing condition. If the farms are worn out, the roads are ditto; and schools, if they exist at all, will be found in some misera-

ble, dilapidated old building, the very sight of which tends to disgust children with the whole system of common school education. Yet it should embody all that is desirable for our sons and daughters to acquire. The district school house should tend to elevate the minds of children both in an æsthetical and hygienic point of view. Yet all that is useful for a child to know is not learned inside of a close stove-heated room, however finely it may be furnished, and much more will the failure be, if the school is kept in an old tumble-down rookery. And have you ever thought how much the characters of children are affected by the houses in which they are born and grow to manhood? Upon this subject a long and useful discourse might be written. Here, I have only time to ask you to think. It is morally impossible for any man who owns a farm house, which is hardly a fit home for his pigs, much less for his children, to give this subject an hour of serious consideration, without at once resolving upon improvement.

It is a crime which should entitle a man to a severe punishment to compel his wife to do the slavish labor of a farm house, in one that is inconvenient and uncomfortable as some of them are.

Shall I tell you what I think every farmer should provide for the convenience and comfort of his family?

In the first place, the kitchen should be one of the most cheerful, light and airy rooms in the house; for it is in that room that "mother and the children" spend most of their early life. It should be cool in Summer and warm in Winter. There should be a shed at the back door, and a great spreading shade tree a few steps distant.

An unfailing supply of soft water should be within ten feet of the fire. A cistern can be built for twenty-five dollars, that will hold fifty barrels of rain-water. It is only to dig a hole in the ground and plaster it with cement, two coats. No brick walls are needed; and two barrels of cement will plaster a cistern six feet wide and six feet deep, and that will hold 1,260 gallons.

Water being provided, fuel should be made equally convenient. The very best cooking range or stove that can be provided is none too good for a farmer's kitchen. It should be furnished with coal, wherever a ton can be purchased with two cords of solid wood. A ton of anthracite coal will outlast two cords of wood, and save a great deal of labor indoors and out. It also saves complaints, for which there is often sad cause, about good wood for the stove and oven.

Whenever woman's rights are fully established in this country, it

shall be made justifiable cause of divorce for any farmer's wife, whose husband fails to furnish her with a washing-machine, clothes-wringer, mop-wringer, coffee-roaster, coffee-mill, and another upon a larger scale, for cracking wheat and corn. A meat cutter is also indispensable; and a newly patented bread mixer is a convenience. A small grindstone is a labor-saving implement, it should be in every kitchen. Patent churns, as a general thing, are patent nuisances; there are one or two exceptions. Every well furnished kitchen has a clock; there should be three or four others about the house; they save time and shoe leather, and keep us up to time; a necessity of this railroad age and fast young men.

It is pretty near the height of folly for any farmer's family to attempt to keep house without a sewing-machine. In some families a knitting machine would be a great acquisition. But a sewing machine is absolutely indispensable.

It should be made by common consent and public opinion, one of the absolute duties of every husband to provide his wife with all possible facilities to enable her to save labor in house-keeping. All of the articles I have mentioned, and some others, are as necessary to her as mowers, reapers, winnowers, horse-rakes and horse-forks are to him.

To promote comfort, health and happiness in a family, is a duty that should be strongly inculcated. It can be done in no way so easily as in making your house comfortable and convenient as your circumstances will possibly permit. It should be made so in all respects.

One of the greatest pleasures to a woman is to have a house that she is not ashamed of inside nor out. Give her the cheap indulgence of a handsome door-yard, adorned with flowers, shrubs, vines, fruit, grassy lawn and shade trees; with piazzas and venetian blinds to your house. Give her a neat clothes-drying yard, and many other things needed outside as well as in the house, and you will promote her happiness and prolong her life, and thus raise better children than you will if you neglect these words of good advice.

Do not begrudge to your wife and daughters the cheap luxury of a flower garden. Do not forget that

> Each fragrant opening bud on earth that breathes,
> A poem is. The petals give the rhyme;
> The measured cadence comes from air and leaves;
> The anthers mark the song with proper time,

Which on Eolian harps, the Fairies play;
  While birds with wings, on every bough above,
Shall beat the time Aurora brings with day;
  Thus birds and flowers, and sun, a song of love
Together sing—a song of love so dear,
The flowers shall dance its joyful welcome here.

A few words of advice now upon a subject of much importance to many farmers.

If you need to build a new house, as a great many farmers do, remember what great improvements in the mode of building have been made, and accept from me a few instructive hints, which you can think of at your leisure.

Fifty years ago, the raising of a house forty feet square, two stories high, summoned all the men for miles around, and was a cause of deep anxiety. Now, three or four men are all sufficient. There is no such thing as framing. There are no tenons, mortices, braces, nor heavy timbers. The carpenters commence upon one side, setting up the light studding and nailing on the boards, and so work around and upward, putting in stick after stick, as it is needed, much as you would work up a basket. Instead of lifting up huge timbers to the tops of the posts, for beams and plates, often at the greatest risk of life and limb, we substitute an inch board, which is firmly nailed to the top of the studs. Posts, there are none. No upright piece of timber larger than two by five inches is needed, and no other stick larger than is necessary for common floor joists, some of which are two by five, three by seven, or for the very strongest, perhaps three by nine inches. And this is called "a balloon frame," a name given in derision—as was Yankee Doodle—and like that will endure.

Then we have equally great improvements in roofing. The earth gives the material, as it does fuel and lights. It is cheap and simple as the balloon frame, and the best of anything ever used; requiring no machinery, no laboratory, no more skill than any smart farmer's boy could acquire in one week, and capable of being applied anywhere, at any angle of pitch, making every surface and every crack or joining to other buildings perfectly tight, so that neither rain nor snow can drive in; and what is best of all for a farm house, a roof that never can take fire from sparks, nor any other cause. It is absolutely fire-proof, as well as water-proof, and appears to be indestructible. And unlike our fast failing shingle timber, the supply of this new roofing material is as inexhaustible as our supply of coal and petroleum.

Be careful in the selection of your site. Look more to the comfort

of your family, than the contiguity of your house to the pig-pen. Do not build so closely to the highway that its dust and noise will be an unceasing annoyance to your wife and childern.

Avoid building a house that will always remind you of the elephant the man won in a lottery. The unwieldy beast could not be kept, sold nor given away, and at length ate its new owner out of house and home. Some elephantine farm houses effect the same thing.

Design your new house for convenience. Make a plan that will show the location of every article of furniture, and every door, window and fire-place in each room, and how you are going to get from one room to another, or rather from halls to all rooms, without going through others. You will find it most pleasant and most healthy to have the apartments which will be most used, upon the south-eastern side, where the children can see the morning sun. Have piazzas upon the same sides, so as to get a pleasant evening resort in summer. There is no part of a house that affords so much comfort as a pleasant piazza.

When you get your plan of the size and shape of the house, and the relative position of all its parts, and all their uses, so they can be seen and easily understood, submit them to the party above all others most interested. Do you understand that I mean your wife? If you are so unfortunate as not to have one, consult your mother, or sister, or the best housewife of your acquaintance. If this course had been adopted in all cases, we should not now have such numbers of inconvenient dwellings. Some of them are wretched abortions of the designers—if there ever was any design, plan or previous thought about the matter. At any rate, there are many farms which would be worth more, if the timber, boards, bricks and lime were in separate piles. I have known many a farm that would not sell for as much after a new house was built, as it would with the old one. Time and money were wasted, for want of knowing how to build.

So the soil has been wasted. The richest gold mine would be worthless without a soil to sustain the miners. The magnificence, wealth, luxury and commerce of New York are as much fruits of the soil as your corn and potatoes; and every city should feel an interest in the prosperity of the farmer, and fertility of his soil. If you promote that, you promote the happiness of the human family. Upon this study, reflect and act. Learn that a starved soil will die as surely as a starved horse.

Although much of the food of a plant comes from the air, neither

plant nor animal can live upon air alone. Wherever the soil is made most fertile, there the atmosphere gives most aid. Fertility is like some other desirable objects, which to be won must be courted—the more the better for all parties.

The earth and air are both full of riches, but they will never come to the sluggard, nor to the abusive husband, whether of the earth or woman. Both require better treatment than they sometimes receive. Both require thoughts, which I hope my words will have a tendency to arouse. If so, then my labor is not in vain, for such thoughts will tend to improvement. And this is my object—my earnest desire—to give my aid toward the improvement of the soil and the mind—to the elevation of the character and condition of the agriculture of my country.

JEFFERSON.

The fifty-first fair of the Jefferson County Agricultural Society was held on the society's grounds, at Watertown, September 23, 24 and 25, 1868.

The first day of our exhibition was, unfortunately for the society, rainy. Notwithstanding the unpleasant weather, more entries upon the books were made than upon any one day of the society's existence. The managers were unable to be "up to time" in meeting the society's programme, and do justice to exhibitors present, and others known to be on their way for that purpose; yet so urgent were the claims of those present, that boards of judges were called at a late hour of the day, and many completed their services and delivered their reports, while others retained their blanks until the second day, when they made their reports.

The third day was emphatically a rainy day, the attendance small; yet the business of the fair suffered no abatement. Those present were the *progressive* portion of our members, not kept at home by falling rains when information could be obtained; but here, within good enclosures of their own, erected expressly to meet the contingency of unfavorable weather during our fairs. The number of thorough-bred cattle on exhibition *this* year exceeds that of last year by twelve; yet it is known that our breeders of thorough-bred cattle in this county keep many specimens from our grounds. Show of grades and native cattle increased by three only. While our show of cattle is moderately increasing, yet the conviction is firmly fixed

that less attention is paid this department than the farming, especially dairy, interest of our county demands. Those on exhibition reflected credit upon their owners.

Our county may well be proud of the excellent horses she furnishes for her use and for market. The number on exhibition shows a falling off from last year; yet in *quality* an evident advance has been made. Each department, except stallions, suffered a slight decline in numbers. The unfavorable weather, doubtless, had much to do in producing this result, not only in the department of horses but in probably all departments named on our list. There was a good show of sheep, swine, and fowls; but for the merited reputation that Jefferson county bears for her superior hogs, the show was meagre in numbers; but those exhibited were of first quality. Where are our "small breed" pigs? Not one on exhibition.

Would you learn where progress is made more apparent? Look at "domestic department," entries 360. This exceeds those of last year by twenty-seven; and no previous year had equaled the last in that department. Agricultural hall was loaded with material furnished by ladies of our society, from the beautiful and substantial carpet, fulled cloth, flannels, linen, and the numberless indispensable articles for family use, including the useful and ornamental, to the cake tidy, and lady's pin cushion.

The extensive exhibition of the choicest varieties of vegetables, garden and field, gave evidence of improvement and increasing interest in this department; the entries exceeding those of last year by sixty-five. Indeed dairy hall gave evidence of increasing interest in the dairy department, also; the entries of samples of butter and cheese, including sugar and honey, having advanced sixteen.

Great credit is due to the various amateurs who furnished floral hall with its varied and numerous attractions. The choicest selection of fruits, apples, pears, plums and grapes in rich abundance. Flowers, as varied as our soil and climate, with the choicest care and culture, will produce, in the varied forms that *taste* can suggest. Pictures in endless variety, portraits, oil paintings, crayon drawings, pencilings, photographs, specimens of the most beautiful penmanship, representing 103 entries; most of which include from one to forty-six varieties, each tastefully arranged on counters, shelves, pendants, upon fixtures prepared for that purpose, all surrounding the pavilion in the center, upon which was placed one of Perry Brothers' choice pianos, from which Mrs. Kitty Angel and Miss Helen Bealls dis-

coursed choice music, occasionally adding their voices; thereby increasing the interest, and giving variety to the scene.

At the close of the exhibition of horses in harness, as advertised in programme, the society repaired to Agricultural hall, which, strange to say, was nearly filled (raining, and had rained all day to this hour without intermission), where, being called to order by the president, exercises were opened by prayer by the Rev. Mr. Rice, of Watertown.

The president introduced Hon. Jas. F. Starbuck, who furnished the society with an annual address, requiring precisely one hour for its delivery. This address is remarkable for its direct application to the time, place, occasion and purposes for which any *agricultural* address should be made, and reflects credit upon its author, for deviating from the beaten track of perverting the occasion by taxing an agricultural society with something foreign to the object of its convention.

DANIEL GREEN,
President.

A. P. SIGOURNEY, *Secretary.*

REPORT OF VIEWING COMMITTEE.

Your committee, selected to examine dairies, orchards, gardens, and hop-yards, submit the following report:

That in the exercise of our duties, we passed through the towns of Watertown, Brownville, Hounsfield, Adams, Rodman, Rutland, LeRay, Pamelia and Orleans.

The delightful weather, the excellent state of roads, and diversity of scenery; the friendly greetings and hospitality extended to us at every hand, served to make our trip a pleasant one.

With pleasure too, we announce, that all along the line of our travels, the word "progress" was written in unmistakable characters. Evidences that our Jefferson county farmers are growing in wisdom are visible to even a casual observer. Wise not only in catering, but in the application of means to the bringing out of the best results in agricultural pursuits, and also in giving the best educational advantages to their sons and daughters, an investment that will not only prove a blessing to themselves, but to the world.

We observe, too, that science in agriculture is no longer scoffed at by farmers in general, but is heeded and applied in many ways. Underdraining is being practiced to a considerable extent. Deep tillage, and the use of gypsum as a fertilizer are becoming more and

more appreciated and brought into general use. *Really* no farmer can afford to discard or neglect either. Dairying has already become the leading branch of agriculture in this county. Look where you will, upon hill top, valley or plain, you will see herds of cows grazing quietly upon the rich pasturage with which our fields abound. Grain raising, in competition with the west, is no longer deemed profitable. Quite too long has this unequal contest been kept up, exhausting the soil, and leaving the pocket comparatively empty. While the west gives to the world bread, let us give a good, wholesome article of butter and cheese to go with it.

Our county is well adapted to grazing. The problem of how to convert its grasses into good butter and cheese is solved. What we now need is a better system of marketing. Our butter should be packed in pails that would be known in market as coming from Jefferson county. This, with the application of science which is at hand, in its manufacture, would insure to us Orange county prices. Our cheese is now handled almost exclusively by local dealers, without competition. Direct shippers or heavy retail dealers from the metropolis scarce ever visit our county. An established market place at some available point in the county, would attract this class of dealers and create a competition that would operate much in our favor. We hope soon to see some action on the part of dairymen in this matter.

Lest you might think from the foregoing that we were unable to appreciate anything out of the line of butter and cheese, we would call your attention to the artificial trout ponds, which, though not entered for a premium, nevertheless attracted our notice, and were examined with much interest and pleasure. In connection with and over one of these ponds is a hatching house, erected for the artificial propagation of brook trout. From experiments already made by the proprietors of this, to us, novel enterprise, they have fully demonstrated the fact that brook trout can be artificially produced to an unlimited extent, and that by *culture* they can be reared and prepared for table use at an earlier age than those caught in a wild state, and at a cost merely nominal. The number of trout already placed in these sparkling waters, for breeders, is about fifteen hundred.

The feasibility of this branch of business with *us*, had hitherto been doubted; but from our present understanding, we can see no reason why the business may not be made profitable, and successfully introduced wherever pure, running water can be made available. For

particulars we would refer you to the enterprising proprietors, Messrs. Huntington and Woodruff. For a sight of this novelty, go to the head-waters of Cold Creek.

Begging pardon for this digression, we will now return to our report.

Out of seventy-five cheese factories in this county we regret to say but six were entered for premiums. For mode of management in manufacturing, we would refer you to the statements accompanying the report. We shall only note the results.

The factory dairy of cheese to which we have made the award of first premium, was in appearance everyway fine and tidy, but what is of more vital importance, tried well; being solid in texture, mealy, mellow and of fine flavor. In point of manufacturing apparatus, this factory was poorly equipped, using Cooper's self heating vats, that gave them much trouble, as we were told, by leakage.

We made the award of second prize to a dairy that tried equal to the first with but few exceptions, but in appearance fell somewhat behind. Great credit is due the young man that made it, he being but a lad of seventeen.

The third premium was awarded to a dairy that in appearance, perhaps, equaled the second, but did not try as well. In firmness of texture did not meet our ideal.

The award of fourth premium was made to a dairy of very excellent merit, with the exception of those manufactured in the earlier part of July, most of which were composed of what is termed floating curd.

Your committee beg leave to state that all efforts upon their part to ascertain the precise cause of this peculiar condition of curd, with which all factories examined by them were more or less troubled, have proved unavailing. They however deemed it a subject worthy of thorough investigation, and would recommend a chemical analysis of curd, or milk producing it.

The dairy securing the fifth prize was in point of surrounding neatness, unsurpassed by any. The quality of the cheese may be indicated by the position assigned it upon the list of premiums.

Of farm cheese dairies, we examined three, that in point of quality and general appearance showed great care and skill in their manufacture. As to selective merit, stand as placed upon our list of premiums. We should mention, however, that the dairy taking the first prize was without fault in appearance or test, possessing all the attractions of a first class factory-made cheese.

Of butter dairies, five were examined. That which stands at the head of the list, in point of neatness, uniform color, sweetness of flavor and perfection of grain, found in every package, fully met our ideas of a prime dairy. It would seem needless to mention that the surrounding conditions were all in keeping with the results attained. What we have said in relation to the first, will apply, with some modifications as to quality, to those awarded the second, third and fourth. We deem it proper here to state, in relation to the fourth, that it was well manufactured, but was injured in flavor on top of packages, for want of proper care, using simple cloth and dry salt.

Of orchards, five were visited, and as no statement will accompany this report, we have been somewhat explicit in regard to location, mode of cultivation, &c.

Four of these orchards were cultivated upon high standards, or in the usual way, and one upon dwarf standards. The one to which the committee award the first premium consists of thirteen approved varieties, and numbers 125 trees. The ground upon which this orchard is situated is a gravelly loam, with a ridge lying north and south, sloping both to the east and west. The trees on the summit and the eastern slope were the best growth, and showed the most healthy condition. Was planted in 1864, selected from Hoyt's nursery. The ground has been cultivated by hoeing, and the trees manured with straw manure. Last spring the bark lice made their appearance, but were soon put to flight by washing in strong lye. This orchard is in full bearing. The manner of training is by starting the tree tops about three feet high, and observing the conical shape as much as possible, in view of the different varieties. All of this has been done to perfection, and the proprietor has a fine orchard in reward for his labors.

The one to which your committee award the second premium, was located on a northern and eastern slope of hill. Soil gravelly loam. Was planted in the year '67, and consists of 358 trees, comprising twenty-three of the choicest and most hardy varieties. This orchard was planted to potatoes last season and to corn this. The trees were mulched immediately after setting, were hilled up last fall with earth one foot in height, to prevent girdling by mice. The whole surface of the ground was heavily manured last spring. Only a very few of this whole number, it would seem, ever knew that they had been transplanted, so rapid has been their growth, some making a growth of four feet this season. The tops of this orchard were started from

four to five feet in height, which, in our opinion, is too high for general pruning. In point of thrift and health, this orchard exceeds any other visited by your committee. The size of orchard, number of varieties, and perfectness of planting, will, if the present system of culture is kept up, insure its position among the best orchards of the State.

The orchard to which your committee award the third premium, consists of 120 trees, varieties not known. Has been planted six years. Hoed crops were raised upon the soil for several years, and then seeded. Is now in grass. Many of the trees are in a diseased state, and but few are bearing, while all need pruning very badly. Soil sandy and gravelly loam. No mulching used.

Your committee visited one other orchard entered for premium; but, owing to its having no cultivation at all, the trees were mostly in a diseased or dying condition, and it was not deemed worthy either of a premium or further notice.

Your committee also visited a dwarf orchard, and, considering it among the highest specimens of horticulture, and not deeming it just to put it in competition with others cultivated upon high standards, recommend a premium of $6 and diploma to proprietor.

This beautiful orchard was planted in 1864, consists of sixty trees of thirteen varieties, most of which bore plentifully the present season. The location of this orchard is sloping slightly westward, soil a rich loam; has been kept under constant cultivation. The form observed in pruning has been globular, and in every respect this orchard speaks in the highest praise of the care and skill of its owner, Mr. L. Baldwin, of Stone Mills.

Your committee visited but one field of hops, as but one was entered for premium. This branch of agriculture, which is receiving much attention by some of our sister counties (Oneida, for instance), is, comparatively speaking, a neglected one with us. No business is as well calculated to go hand-in-hand with dairying as hop raising. The net income of the latter, taking one year with another, on the same outlay, will reach a sum from one and a half to four times as much as the former. The fluctuation in the price of hops is wide, we know, so also is it of butter; yet no dairyman is discouraged on account of price, or fear of glutting the market. Nor need he be in hop raising. Many devices and plans have been formed in hop districts as substitutes for poles, of which our county is fast being drained to supply the wants of other counties. This should not be; we should use them ourselves.

The hop yard visited by your committee, is a new one of three acres, yielding its first crop, which is estimated by its proprietor at 1,000 pounds per acre. A portion, perhaps one-half of its area, was a very heavy growth, yielding 1,500 pounds per acre, the balance is not fully rooted, missed hills on wet ground. We witnessed with pleasure the efforts to render this field more productive and valuable, by a system of underdraining and manuring. In the absence of all competition, the first premium was awarded the proprietor.

But one garden was entered for premium. This contained about one acre of land, the soil loam and muck. Amongst its products are many of the finest varieties of grapes, strawberries, blackberries, raspberries, all of which grow luxuriantly and bear well. The vegetable department comprises all of the staple garden vegetables, with many of the finer and more delicate varieties, all of which have been cultivated in the best manner, and has produced in most respects, equal to the wishes of its worthy owner. The dwarf orchard and garden together would well remunerate any horticulturist for a journey of many miles to behold.

Statement of Wm. Fuller, Manufacturer of Cheese, at Westcott's Factory, for 1868.

First Premium.

To the Viewing Committee of the Jefferson County Agricultural Society :

Gentlemen—I commenced the manufacture of cheese in this factory, on the 12th day of May last, with the small quantity of 3,876 pounds of milk, the flow of about 200 cows. We labored under some disadvantages at the commencement, and have subsequently, from the unfavorable condition of vats, to which your attention is drawn; but justice to Mr. Westcott demands the statement that every effort on his part has been cheerfully and promptly made to repair and keep in order all apparatus and fixtures necessary for use in the prosecution of our business.

The number of cows from which milk has been furnished, gradually increased until July 6, when twelve were added, making the maximum number 312. The largest amount of milk furnished in any one day was 7,411 pounds.

We manufactured 441,074 pounds of milk into 42,518 pounds of cured cheese; prior to July 17, a pound of cheese requiring more than

ten pounds of milk for its production, as you will observe, a requirement never before made in our experience for five years, in making cheese in factories, and we are unable to give a reason satisfactory to ourselves, aside from the unfavorable condition of vats above stated. It may not be out of place to remark that we have neither used or had any instrument to test the quality of milk, yet no intimation is made that any milk has been adulterated by any of the patrons of the factory.

No better place can be found for the establishment and successful prosecution of the manufacture of cheese than that occupied by the Westcott Cheese Factory.

We now have upon our tables or racks, 495 boxes of cheese, subject to your inspection and examination; which, when cured, will average between sixty-two and sixty-three pounds each; taking the lower number it will make the weight of the cheese on hand 30,690 pounds, the product of 316,700 pounds of milk. To condense results of the season's operations to September 14, we have made 1,185 boxes of cheese (use fifteen and a-half inch hoop), 73,208 pounds cheese from 757,774 pounds milk. Relative to the quality of the cheese, and the evidence of skill and care in its manufacture and curing process, the article must speak for itself; yet it may not be improper to say that none have, thus far, been rejected by purchasers as not being marketable.

Brief summary of mode of manufacture: Use Cooper's vats; have two; put night's milk, one half in each; cool by the use of water around and beneath vats (temperature 54 deg. and ample and constant supply) and stirring milk to 70 deg.; leave for night; divide morning's milk in same manner and mix with night's, after having dipped cream from surface of night's milk and return it through strainer; heat to 83 deg., add rennet (use three-fourths of a rennet per cow during an entire season), require from twenty-five to thirty-five minutes in which to coagulate; we keep milk in slight agitation in order to equalize temperature, until it is of a creamy consistence, then let it stand until it will break across the finger; cut curd both ways of vat at several different times, allowing intervals in which the curd may settle; raise the heat gradually until it reaches 100 deg., taking two and a half to three hours in which to reach that degree, working curd constantly with hands, introducing rake when it reaches ninety-three deg. I will here remark that we deem it indispensable to keep constantly on hand for use, a supply of strong lye, and when the milk or

curd at any stage except while in the act of coagulating, gives evidence of approaching sourness by an acid vapor from the vats, we pour from one to four quarts in each vat, according to demand as indicated by its acidity. As above remarked, we consume from two and a half to three hours in the cooking process, and when the heat has reached 100 deg. we draw off about one-third of the whey, remove the fire and water, working curd about one and a half hours, until all blisters disappear, and curd will fall apart when released from pressure by the hand, like small peas. We make fine curd; use two and a half pounds of salt in 100 pounds of curd, or 1,000 pounds of milk; mix and stir thoroughly, in the hoop, equal quantities of curd from each vat; put to press cold; press gradually two and a half hours; turn, bandage and press hard twenty hours; turn and rub cheese daily; oil occasionally, where untouched by bandage, as circumstances require.

I certify that the foregoing statement is true in all respects.

WILLIAM FULLER.

WESTCOTT'S CHEESE FACTORY, WATERTOWN, *September* 14, 1868.

STATEMENT OF C. C. HARDY'S FARM DAIRY.

First Premium.

I have thirty cows; commenced making cheese April 1st; make one a day; average sixty-six pounds; have all on hand made since the 20th of May. I aim to have my cows come in early; feed about four quarts of shorts and barley meal mixed in equal proportions a day to each cow, until grass comes; average yield per cow last year, 518½ lbs.; preserve rennet by filling with salt and drying; prepare for use by soaking in brine; use rennet enough to bring the curd in one hour; cut with curd knife and let stand an hour; then finish cutting and turn on the heat; scald at 102 deg. and let it remain in the scald until the whey changes; then dip into the rack for cooling and drying; when sufficiently cool, salt at the rate of two and one-half pounds of FF dairy salt to 100 lbs. of curd, when pressed, varying the salt from day to day according to the state of the curd; if quick and tough, less salt, if slow and tender, more; use Cooper's vat; screw press; do not know the amount of pressure; press about twenty-three hours; turn every day and use whey oil on the surface in curing; cows drink most of the whey; keep a dairy account.

C. C. HARDY.

STATEMENT OF MADISON GOULDING'S DAIRY.

First Premium.

Twenty-three cows, including four heifers; feed grain and roots before turning to grass; usual average yield from 150 to 200 per cow; strain in tin pans, about four quarts each; skimmed as soon as thick, according as the weather is hot or cool; cream in stone jars, from twelve to twenty-four hours in the cellar; cream is stirred morning and night before churning; use the common dash churn; separate the buttermilk from butter by washing with cold spring water; butter is worked with ladle; butter is worked once after it is washed, before packing; use Ashton salt, one and one-quarter ounces to a pound of butter; pack butter in ash tubs; tubs soaked in brine; tubs rubbed with salt before putting in the butter; when full cover with cloth, then cover the whole with about an inch of salt, then dampen the salt with cold water; butter kept in the cellar; no labor required for its preservation, only keep the salt damp; last year, milk sold; number of pounds made thus far this season, about 2,300; sour milk fed to hogs and calves.

MADISON GOULDING.

ADDRESS, DELIVERED BEFORE THE JEFFERSON COUNTY AGRICULTURAL SOCIETY, SEPTEMBER 25TH, 1868, BY HON. JAMES F. STARBUCK, OF WATERTOWN.

Mr. President, Ladies and Gentlemen:—Again this autumn season calls the husbandman to the duty of thankfulness to God, that his promise that "seed time and harvest shall not cease," is still being fulfilled. Again the farmer's season of labor, for the year, is nearly ended, the fruits of the earth are gathered, and now, on this time-honored anniversary, we meet to take counsel together, to contrast the present with the past, to mark the degree of progress already achieved, and to forecast, so far as we may, our prospects, our duty and our destiny.

PAST AND PRESENT.

The contrast between *now* and *then* in the history of this Society, its extended and comprehensive prize list now, compared with the meagre list presented fifty years ago, when, under the guidance of the great men by whom it was founded, it was in its early infancy; the few who honored it by their presence then, in contrast with the multitudes who listen to its teachings now; its feebleness and ineffi-

ciency then and its strength and potential influence to-day; these are facts so had in remembrance from the frequency of their past repetition, that this audience will perhaps thank me to pass them by.

There are other contrasts of the present with the past, which, to the young farmer, are quite as striking and more instructive. One of these is seen in the great benefit conferred upon agricultural enterprise by the genius of the inventor, and the skill of the mechanic. Though by no means in the category of the old, my memory goes back to the use of agricultural implements, at the sight of which, at the present day, the young farmer could not fail to be greatly amused. For example, did you ever plow a furrow with the old "bull plow," with its one handle and wood mold-board? Did you ever thrash your grain crop with the old hand flail? Did you ever see the old fashioned fan, by which the grain was separated by hand from the chaff? Have you seen a body of men in the grain field, each armed with a sickle, engaged in the business of reaping? These questions might be indefinitely extended.

When your ancestors organized this society, and for a long time thereafter, the earth was plowed by the use of the wood mold-board; the cultivator was unknown; hay was cut exclusively by hand, with the scythe, spread, raked and pitched by hand; spring crops were planted by hand and cultivated with the shovel plow and hand hoe, and the grain crop was cut with the hand sickle, thrashed with the flail and cleaned with the fan.

Strike out of existence the present improved plow and its metalic mold-board, the mower and reaper, the thrasher and cleaner, the horse rake and fork, the planter and cultivator, and the numerous other valuable inventions lately brought into use, and attempt to cultivate your farms without any of these now indispensable implements, and you will begin to feel the obligation of agriculture to inventive genius and mechanical skill.

These contrasts are useful in a multitude of ways. They teach modesty to the farmer. They modify his assumption of self reliance and independence of other pursuits. They make him feel that his great success is due more to the genius of the inventor and the skill of the mechanic, than to himself.

In contrasting the present with the past, this obligation of agriculture to inventive genius and mechanical skill is still more strikingly seen in the matter of the means of information, and of access to the great markets of the world.

When our fathers cultivated the earth, they were not only at remote distances from market, but they were generally forced to sell in ignorance of the real value of the commodities they produced. Their only means of communication with the old world were sailing vessels. They were days and weeks without news from Europe, and, in the interior, our people were nearly as much in arrear in tidings from their own city of New York.

It seems hard to realize that it is within the last thirty years that the first steam vessel crossed the Atlantic, that the men who organized this society had never seen a locomotive engine or a railroad car, that until within the last twenty years the Pacific coast was accessible only by the journey around Cape Horn, and that more time was necessarily occupied to reach New York, from Watertown, than is now required to make the journey to Europe, from almost any point in the United States.

Now, instead of carting your produce long journeys, to markets of which you know nothing, that modern wonder of science, the magnetic telegraph, brings daily to your doors the ruling prices for that same day and hour at the great markets of the Old World as well as the New. The locomotive comes, practically, to your farms, and takes your products with the rapidity of steam, to the world's best markets—you perform your day's labor at home, retire to a comfortable bed at night, and wake in the morning in the city of New York—you transact your business in the city, retire for the night, and again you wake in the morning to find yourself at home, having made this journey of nearly 1,000 miles without the loss of a single hour! You no longer reach the Pacific by the tedious journey around Cape Horn, and, within a year from this time, you are to take your seat in the railroad car on the Atlantic coast, and in a single week you are to cross the continent and be safely set down in San Francisco!

Strike out from the sum of human knowledge, not only the indispensable implements of husbandry, to which I have before adverted, but the sailing vessel and the steamer, the railroad and canal, the products of the mines and the mechanism wrought of iron, the magnetic telegraph and the press, and we shall then begin to appreciate the obligation of agriculture to inventive genius and mechanical skill.

I sometimes hear professed scholars as well as unthinking persons, declare that the only producing classes are our farmers and mechanics, while some exclude mechanics also from the category of producers.

There was never a more palpable error. This error is strikingly shown by the facts to which I have adverted. By them we are taught the great truth of our mutual dependence on each other. They compel a recognition of the fact, that all these various departments of human enterprise are peopled by real producers—by the world's benefactors, in that they all aid to produce "two blades of grass where but one grew before." They compel us to know and feel that the sons of science and the sons of toil, the man of genius and the laborer in the field, they who go down into the mines, and "they who go down to the sea in ships," the merchant, the manufacturer and the artisan, the mechanic and the farmer are really co-workers together, each alike indispensable to all in solving the great problem of human progress on which mankind are engaged.

Results of Jefferson County Farming.

By the use of the means which science and skill have thus furnished to your hands, it will be useful to know something of the annual results produced. Our last reliable statistics are found in the census of 1865. You then cultivated 514,979 acres, and milked 56,551 cows. Your dairy product was $2,343,242, or an average of $41.43 from each cow. You owned live stock to the value of more than $6,000,000, and your agricultural products for the year, exclusive of domestic manufactures, market gardens, poultry, and some other minor matters, were more than $6,000,000. These facts tend to a feeling of self-satisfaction, and especially with the great dairying interest. But have you, Jefferson county farmers, really any reason to be self complacent over your achievments? That depends upon whether or not you have made the best use of the means at your disposal. To settle this question I propose to

Contrast Jefferson with Herkimer County.

Jefferson County.

Improved acres	514,979
Population	66,448
Number of cows	56,551
Dairy products	$2,343,224
Grain products	901,595
Thirteen other products	2,912,072
Total products	6,156,891
Value of horses, cattle, sheep and hogs	6,194,425

Herkimer County.

Improved acres	278,342
Population	39,154
Number of cows	46,627
Dairy products	$3,157,129
Grain products	1,109,780
Same thirteen other products	2,524,882
Total products	6,796,791
Value of same live stock	4,031,752

Is not this contrast suggestive? What reasons can you give, why, in Herkimer county, a population of 39,154, on 278,342 acres of land, with 46,627, cows, should produce from their dairies $818,905 *more* than you produce on 514,979 acres, with a population of 66,-448 and with 56,551 cows?

This contrast is more sharply stated thus:

Jefferson over Herkimer.

Excess of improved acres	236,637
Excess of population	27,294
Excess of milch cows	9,924

Herkimer over Jefferson.

Excess of dairy products	$818,905
Excess of total products	639,900

There must be some reason for this marked superiority of the Herkimer farmer over you. Your soil is believed to be as productive as his. The secret must lie in his superior skill in husbandry.

But I may be told that as these figures are founded upon results in 1864, Herkimer had then reached her maximum, while Jefferson has greatly improved in the last four years. While I am glad to believe in the alleged improvement here, it will not do to suppose that Herkimer has not made great progress since 1864. My calculations are based on a cheese product in Herkimer of over thirteen millions of pounds. My information is that she, last year, produced for export over seventeen millions of pounds. Your progress must have been very creditable if you have kept pace with this, and yet you would be far behind the Herkimer farmer.

Before dismissing this subject permit me to state a few more comparative results. I have already given you the figures by which if you will make the calculation for yourselves, you will reach these very striking conclusions:

1. Herkimer county farming yields an average of $80.91 more to each person than Jefferson farming does.

2. Herkimer produces $12.47 more per acre than Jefferson does.

3. The cows milked in Herkimer produce $26.28 each, more than the cows milked in Jefferson.

While you thus fail to reap any such reward for your labor as is secured by the farmer of Herkimer, the capital on which your results, are produced, is greatly in excess of theirs. You not only have vastly more invested in land than they have, but you feed nearly 10,000 excess of cows, and keep a large excess of working oxen and horses.

The value of your live stock is.....	$6,156,891
While that of Herkimer is	4,031,752
Excess in Jefferson,.....	$2,125,139

A large portion of this sum is invested in your excess of milch cows. From this it follows that my figures of comparative results, fail to exhibit in its fullness, the superiority of Herkimer county farming over yours.

I repeat: There must be some reason by which to account for these astonishing contrasts. What is it? This question the Jefferson county farmer must solve. You can't *afford* to labor as diligently as your neighbor, with *more* capital invested, reaping only about *half* the reward realized by him. The moment the fact comes to be understood that *poor* farming is vastly the most expensive, I trust it will be abandoned, and good husbandry substituted in its place.

I apprehend that investigation will establish the fact that our comparative agricultural failure is due mainly to these causes:

1. In our greed for land, we try to cultivate too many acres, and hence fail to cultivate them well.

2. We do not give sufficient attention to manures and fertilizers to secure production up to the capacity of the soil.

3. We have neglected the important duty of procuring pure, clean seed, and that of the best variety.

4. Sufficient attention has not been given to the selection, care, and feeding of our stock.

If we will but give heed to these suggestions—if we will cultivate no more acres than we can properly till—apply a sufficient quantity of fertilizers and manures—use pure, clean seed, and that of the best

variety, and attend properly to the care, selection, and feeding of our stock, it is believed that the Jefferson county farmer may reap as rich a reward for his enterprise as is realized by the farmer, in the same department of agriculture, in any other section of the State.

Another paramount agricultural need in our county, is attention to the

CULTIVATION OF FRUIT.

The region in this great country, in which good fruit, and especially that most valuable of all fruit, the apple, can be grown in perfection, is extremely limited. The same variety of apple, the growth of this State, is held by epicures and good judges to be superior in quality, flavor and value, to any grown in almost any other section of the country. Though this fruit is, to a considerable extent, grown at the south, yet the southern apple is not *durable* like ours. The people of that region deal largely in northern apples; and, as early as March and April, if you inquire at any of the markets on or near the Gulf, you will be told that their best apples for that season, come from the North. Here is a vast region, and a great population, which the North must always supply.

I entertain no doubt that the growing of this fruit may be made a very remunerative branch of agricultural enterprise in our county. Though we are compelled to endure the severe rigors of the Northern winter, under which the more tender varieties must fail, yet there is no difficulty in selecting hardy trees, producing the most valuable of fruit, that will thrive, endure, and produce as well, or nearly as well, as in any part of the State.

I well remember the time when the saying was on the tongue of all our people, that *no apples could be grown north of Black river.* Believing in this error, the fact has occurred, year after year, within my observation, that men have made the journey of some fifty miles, from the north part of our county to the county of Oswego, and carried loads of apples from there to their homes for family use! This delusion is now effectually exploded. For several years last past, some of the most successful exhibitors of fruit at the annual fairs of this society, have produced it in orchards far north of the river; and the fact is now well established, that with proper care, apples may be grown in the north as well as in the south part of our county, with very creditable success.

Aside from the fact that fruit trees are indispensable to the comely appearance of every farmers home, and that good fruit is greatly

promotive of health, the fact ought to be more generally known that its cultivation here is probably the most profitable use to which much of our land can be devoted. One acre should sustain about 100 trees. Until they are old enough to come into bearing, you may, with proper culture, grow from 100 to 200 bushels of potatoes, or thirty to fifty bushels of corn on your land; and this cultivation is an essential aid to the growth of your orchard. You must, of course see to it, that you do not permit this double duty to exhaust the soil. When your trees, properly selected, come to produce one bushel only each, you have a sure income of at least $100 per acre, and this comparatively without labor. What other use can you make of your land that will ensure so large an income with so little labor?

The only reason why so many trees have failed in our county, is believed to be the want of proper care in their selection, setting and culture. In passing over our county no observing man can fail to notice the fact, that most of the orchard trees lean to the north-east. This exposes the body of the tree to the comparatively vertical rays of the sun in the hottest part of the day. The sap is thus made to start early in the Spring, your tree then freezes in the night, and the result is that the bark splits, and that side of the tree dies. To remedy this, you will see many trees with a board fastened over this exposed part of the body, to shield it from the sun and thus preserve it. This is only another case of "locking the barn after the horse is stolen." The true remedy is a substantial stake for your tree, keeping it at all times perpendicular. You will then never have this angle of forty-five degrees, on which the solar ray falls with such intense heat.

Our severe spring and fall winds come mainly from the southwest. This is the reason why our orchards lean in the direction indicated. Now if you would succeed in cultivating the apple, select for your orchard, if possible, a piece of land having a good deep soil and *sloping to the northeast*, or sheltered on the *southwest* by a hedge or a forest. Select your trees not only of the best, but of the most hardy varieties. See to it in setting, that your land is so perfectly drained that the water will not settle and freeze about the root. Stake each tree so substantially as to keep it perpendicular, and keep your land sufficiently rich, and cultivate it well every year. In some locations you must use proper precautions against the ravages of the "borer," and always protect your trees against injury by mice in the winter. The last is sufficiently accomplished by a small quantity of manure placed at the root of the tree in the fall; and the most effec-

tual preventive of the "borer" is, probably, the removal and replacement of the earth about the roots of the trees occasionally in the summer. If you find, on examination, that the "borers" have attacked the tree, the insect must be removed. The necessity of precautions against this destructive enemy is temporary only, as after the tree has stood some eight or ten years, it is practically out of danger from this source. If any farmer will faithfully follow these simple directions, he may rest assured that he will not fail to produce excellent crops of apples.

Pears, plums and grapes may also be grown with eminent success in this county.

I would not recommend the attempt to grow plums extensively as a means of profit. They are not sufficiently durable, and hence, if produced in great abundance, would not find a sufficient market; but as to pears and grapes, the day is not far in the future when a great revenue will be realized from their cultivation in this county. With them, as with the apple, care must be exercised in selecting varieties adapted to our soil and climate. This being done, proper cultivation will ensure a rich reward for the labor bestowed and the capital invested. I know of no other county in this State where the Flemish Beauty pear grows in such perfection as in this. The tree is as hardy as the elm; the fruit is amongst the most beautiful and valuable that grows, and the yield is enormous. Set standard trees in a strong clay soil; only give them a decent chance to grow, and, in a few years, you will have a beautiful orchard and an abundance of fruit. There are many other valuable varieties, but my experience is that no other variety has anything like the value of the Flemish Beauty, for cultivation here.

The neglect of fruit culture by our Jefferson county farmers is strikingly shown by reference to the census of 1865. On our 514,979 improved acres, we have only 129,032 bearing apple trees, producing 166,053 bushels of apples, being 1.28 bushels from each tree; while the favored county of Monroe, with 324,050 acres, has 381,902 trees, producing 498,606 bushels, being 1.27 bushels per tree, and the county of Oswego, with 274,591 acres, has 305,000 trees, producing 376,615 bushels, being 1.23 bushels per tree. The last two counties named, have more than one tree to each acre, whilst in ours, we have only one tree to *four* acres, and yet our average product from a tree is greater than theirs. This statement proves that we have only to cultivate trees to make ourselves superior even to Monroe county, in the production of the apple.

Again, I have before me a table compiled in 1866, showing the names of all the counties in this State, producing pears, in each, of the value of $300 or over. Jefferson county is not found in that table.

Again; I have another table showing the percentage of increase in the various counties of this State, in orchard culture, from 1849 to 1859. From this table I extract, by way of contrast,

Monroe, increase	450	per cent.
Niagara, do	660	do
Orleans, do	570	do
Genesee, do	720	do
Ontario, do	300	do
Jefferson, do	7	do

If the statement of these facts can be made effectual to arouse our farmers to the imperative duty of fruit culture, this address will have subserved at least one useful purpose. Let it no longer be stated to our reproach, that while we produce as much fruit per acre as our neighbors, we permit them to increase more than 400 per cent., while we increase only seven per cent.

Country and City—Farmers' Homes.

I ought not to close this address without prominently calling attention to what I regard as one of the most unsatisfactory features of our present agricultural life. I allude to the great and growing disposition of farmers' sons to abandon the old paths traveled by their fathers, and flee from the farm to the city. I can not but regard this as a great and growing evil. Why is it that so many of our young men, at the first opportunity, abandon agricultural pursuits and betake themselves to the city? If the cause can be ascertained, it should be speedily removed. While agricultural enterprise makes no man suddenly rich, it promotes health and good morals; ensures a certain competence, and thus, more certainly than any other pursuit, tends to promote human happiness. On the contrary, the youth who leaves his father's farm to "seek his fortune" in the city, rushes into the midst of perils of which he is little aware. He may, possibly, be successful, but the chances are almost infinite against him. More than ninety per cent of all who make the experiment, fail. They speedily end their career in dissipation and crime, or drag out lives of poverty, slaves to society, striving by day and by night, to support appearances indicating a measure of wealth which they do not possess. Out of every hundred such removals to the city, at least

ninety men are lost to all useful and honorable pursuits. Society in the country cannot afford such a drain upon its resources. We need the men. As farmers, they would add greatly, both to the general wealth, and to the reputation of the great pursuit of agriculture. No effort should be spared to retain them in the useful walks of life, and to save them from the fearful perils to which the city invites them.

But why do the young thus abandon the country and rush to the city? The mania extends to the daughters as well as the sons of our farmers. The ambition is too much fixed on city life, its fashions and follies, and various means of enjoyment. What is the reason, and what is the remedy?

As I pass through our county, and look at the abodes of our farmers, I sometimes think I can *see* the reason. Is there a farmer before me, on whose homestead there is not a fruit tree, nor a cultivated flower, nor even a good kitchen garden; who has no decent sink drain; around whose door, filth and garbage are permitted to accumulate; who has never planted an ornamental tree or shrub; whose pigs and poultry have free access to his front door, and whose house is wholly destitute of useful books, and all other means of diversion and improvement; and who teaches his sons and daughters no more of the mysteries of vegetable life and production than he does his team! I have seen such places called *homes*, inhabited by men worth their thousands, men devoted to the hard slavery of money-getting and money-saving; regarding all mental culture as a waste of time, and requiring of their children the one stern duty of severe labor. I am happy to know that there are many, very many farmers' homes in our county, to which this description has no application; homes worthy of the better life which is there being developed; but does it not, in some of its features at least, apply to quite too many?

Do none of you know a farmer in your vicinity, whose home is not only unattractive, but absolutely repulsive, from some of the causes above referred to, who no sooner receives for his produce the money which ought to be at once expended to improve his home, but instead of so expending it, makes haste to invest it in some form of government bonds, where it is supposed to be exempt from the payment of its just proportion of taxes? Let those who live in such homes, and who persist in making such use of the means which God has given them, cease to wonder that their children seek, at the first opportunity, to turn their backs upon, and flee from, such a life.

The minds of the young are always sensitively alive to the beautiful

and the good. The child is always a lover of fruits and flowers; and the youth, unless perverted by false teachings and mistaken guidance at home, almost instinctively walks in the paths of virtue. Youth looks out upon a world of beauty, and is always in pursuit of knowledge. Do not repress it. On the contrary, teach it to know the charming mysteries of vegetable life and production; the nature, habits, and means of propagation, of the plants, the fruits and flowers, and the more substantial productions of the earth. Above all, give it access to a well selected library of useful books, and, while you make your daily life teach the useful lesson of well directed industry and decent economy, see to it that your home is a school of virtuous refinement and cultivated taste. If you would store your children's minds with pleasant memories, memories that will return to comfort and to bless in all their future years, make them to remember the happy home of their childhood, their father's orchard, and their mother's flowers. Do this and you will no longer have occasion to mourn over the flight of your children, from the country to the town.

Young men and women, aid your parents to beautify your homes. Follow the safe and health-giving paths to which country life invites you, and avoid the perils that always lie in the way of youth and inexperience in the city. Before you resolve to encounter these perils, you should remember that in so doing, you leave behind you the song of the blue bird and the robin; the running brooks, the playful lambs, the green pastures and the sweet flowers of Spring; the new mown hay, the lowing herds and the growing grain of summer, and the ripening fruit, the golden harvest and the glorious sunset of autumn; and, in place of these, you cast your lot in the midst of a false and fictitious life, to look upon folly and upon filth, upon brick walls and stone pavements, perchance

> "In the by-ways and lanes,
> Where misfortune and guilt,
> Their victims have gathered,
> Their city have built."

Though you may struggle manfully for a time, yet, where less than ten are successful, more than ninety will, in a few years, fall into vice, dissipation, or abject poverty; and, looking sadly back to the promise of a happy life so rashly cast away, will be prepared of a truth, to exclaim:

> "The hopes that charmed my youth are dead;
> The sunshine of the heart is fled—
> Its' innocency too!"

There are several other topics connected with the subject of agriculture, which I would be very glad to discuss, but I must forbear. If what has been said shall have the effect to awaken any of us to the necessity of better farming in Jefferson county; to the fact that we try to till too much land; that we must make more extensive use of manure and fertilizers, double our diligence to procure pure, clean seed, and that of the very best variety; give more attention to the selection, care and feeding of our stock; plant our country as it should be with fruit, and especially with apples, pears and grapes; and finally, if it shall quicken us to so improve and beautify our homes, that they will cease to be repulsive to our children, and thus stay the fatal tide that sets from the country towards the city; if it shall tend to the accomplishment of these, or any of these results, then this address will prove to be something more than mere idle words.

LEWIS.

LOWVILLE, *March 8th*, 1869.

The annual fair for 1868 of the Lewis County Agricultural Society was held at Turin, Tuesday, Wednesday and Thursday, September 15th, 16th and 17th.

We regret our inability to do justice to the late county fair. We, in the first place, will state: We labor under one great disadvantage of holding our county fairs alternately at Turin and Lowville, twelve miles distant, the former having the best arrangements and buildings on the grounds, the latter far the best accommodation for the crowd attending the fair, the ground being about equal distance from town.

The weather was very favorable, and the attendance large. In the domestic department were some fine specimens of female industry, which were not at all behind the times.

The hall was not as well filled with entries as on some former occasions. One department showed off very prominent—which brought to mind the old hand-looms had not been thrown aside or deserted—some twenty fine specimens of rag carpeting.

The entry for discretionary premiums was much larger. The dairy was very meager, to the shame of Lewis county, only two samples of cheese and butter. Vegetables and roots exceeded our anticipation. From the drouth last summer a slim show was expected, all were happily disappointed. The show of horses and cattle was

large. Some seventy entries of the former; sixty-five of the latter. Sheep and swine poorly, the feathered tribe well represented. Agricultural implements—new patents—were a full exhibition.

The second day of the fair, at two o'clock, Hon. X. A. Willard, of Herkimer, was introduced, and delivered a most able address. At the conclusion of the address, which was received with marks of approbation, a resolution of thanks was moved and unanimously adopted.

The last day more people turned out and visited the fair than the two preceding. This we cannot account for, unless they came to see fast horses go round a half-mile course in the enclosure of the fair grounds.

Respectfully,
F. B. MORSE,
Secretary.

LIVINGSTON.

To the Secretary of the New York State Agricultural Society:

In accordance with the requirements of section 9, chapter 425 of the Laws of 1855, the following report of the doings of the Livingston County Agricultural Society for the year 1868, is respectfully submitted:

At the annual meeting of the society, held at Geneseo on the 7th day of January, 1868, the following officers were elected for the ensuing year: President, William H. Spencer; Vice-President, Aaron Barber, Jr.; Treasurer, Kidder M. Scott; Secretary, William A. Brodie; and as Directors, Samuel Finley and R. F. McMillen.

The annual cattle show and fair was held on the 23d and 24th of September, the attendance on that occasion being very large, especially on the second day, notwithstanding a drenching rain prevailed during the greater part of both days.

The exhibition of thoroughbred cattle, though confined to a very few individuals, was very good, while in Spanish Merino sheep the exhibition was the poorest for several years. In other departments there was about the usual number of entries, and the exhibition was good considering the unfavorable weather.

RECEIPTS FOR THE YEAR.

Donations	$449 87	
Exhibitions on grounds	85 00	
Memberships	217 00	
Rent of stables	34 00	
Sale of tickets	560 47	
		$1,346 34

DISBURSEMENTS.

Premiums	$699 50	
Rent of grounds	100 00	
Salaries	200 00	
Music, printing and advertising	184 00	
Forage, and labor, &c	236 33	
		1,419 83
Dr. balance		$73 49
Balance in treasury, December 31, 1867		1,435 56
Balance in treasury, December 31, 1868		$1,362 07

W. A. BRODIE,
Secretary.

MONROE.

ROCHESTER, N. Y., *February 10th*, 1869.

B. P. JOHNSON, Esq., *Secretary N. Y. State Agricultural Society:*

DEAR SIR—I have the honor to present the following report of the condition of the Monroe County Agricultural Society for the year 1868.

As is already known to you, the New York State society held its annual fair for 1868 upon our grounds; consequently we held no county fair, but we have not entirely neglected the interests of agriculture. Considerable was done to improve our buildings, repair fences, grounds, &c., to fit them for the State fair, which remained to permanently benefit us.

At our annual society meeting, held January 8th, 1868, a premium of ten dollars was voted H. G. Warner, Esq., of Brighton, for the best acre of Indian corn, the product of said acre being, as shown in Mr. Warner's certificate, 176 bushels of ears, and ninety bushels and twenty pounds of shelled corn.

The report of L. D. Mitchell, Esq., Treasurer of the society, shows that the funds in the treasury were as follows:—

Balance on hand, January 1st, 1868	$603 51
Received from subscriptions	518 50
" State appropriations	715 37
Total	$1,837 38

Disbursements for 1868, as follows :—

For sundry premiums for 1867 (unpaid)	$27 75
" stationery	7 10
" insurance	29 50
" clerk hire	15 00
" stove and furniture	28 24
" office rent	125 00
" repairs to buildings and grounds	518 50
" Gen. N. P. Banks for lecture, 1867	100 00
	$851 09
Cash on hand, January 1st, 1869	$986 29

The officers for 1869 are as follows: President, S. D. Wallbridge; Vice-Presidents: 1st, Alonzo G. Whitcomb; 2d, E. D. Hillman; 3d, J. A. Stull; Secretary, M. D. Rowley; Treasurer, Levi D. Mitchell.

Managers: D. Kingsley, Patrick Barry, A. H. King, Jerome Keyes, W. G. Markham, R. E. Hubbard.

Very truly yours,

M. D. ROWLEY,

Secretary.

MONTGOMERY.

We, Simeon Sammons, President; A. H. Burtch, Secretary; and Thomas R. Horton, Treasurer of the Montgomery County Agricultural Society respectfully report to the Secretary of the State Agricultural Society, pursuant to laws of 1841 and 1855, the condition of the said society. The receipts and expenditures of said society for the year ending January 1st, 1869, as follow, to wit:

Received from sale of tickets	$1,423 55
" rent of eating stands	100 00
" secretary for entries, life members, and rent	149 00
Total receipts	$1,672 55

Paid premiums	$702 25
Paid labor and expenses	942 07
Balance in treasury	28 23
	$1,672 55

S. SAMMONS,
President.

A. H. BURTCH, *Secretary.*
FONDA, *March* 3, 1869.

NIAGARA.

There have been ten regular meetings of the board of managers during the past year, all of which have been well attended. It having been decided in the early part of the year that the society would derive no benefit from a change of the present location of the fair grounds, a committee was appointed at a regular meeting of the board, held in this city, on the 4th day of May last, to superintend the grading of the grounds and the moving of the track. This committee composed of Messrs. Campbell, Bush and Flanders, have commenced the work for which they were appointed, and the new track will be ready for use during the present year. It is the general wish of the members of the Society, that these improvements be continued, and that some provision be made for erecting new buildings in place of those now occupied, which are mere open sheds and not water-proof.

The spring fair was held on the 16th day of last May, at which there was exhibited an unusually fine show of horses and sheep, and farming implements. There were also several competitors in sheep shearing, who displayed much skill in their art. It is recommended that further inducements be offered at these spring fairs, and efforts be made to excite a still greater interest in them than has heretofore been manifested.

The annual fair was appointed to be held on the 24th, 25th and 26th days of September, but owing to the weather, the last two days were postponed until the 9th and 10th days of October. Notwithstanding the inconvenience necessarily resulting from this postponement, there was a large display of the stock and industry of the county on exhibition on each day of the fair. The board felt warranted in offering especial inducements to exhibitors, and increased many of the premiums heretofore given. The amount of

money premiums offered was $1,563, of which $995 was actually awarded, and $895 has been paid. The other expenditures of the Society for grading the grounds and repairing the track, and incidental to the fair, amount to $543.35, making the whole sum for which I have drawn orders on the treasurer $1,438.35.

The board of managers have experienced much difficulty in procuring judges to act at the exhibitions of the society. It is hoped that some plan may be devised to obviate this difficulty.

The collection of agricultural statistics for the past year has been an almost practical failure. Mr. James Van Horn, of Newfane, being the only town vice-president who has furnished a complete report of his town. Scattering returns have been sent in from other towns, but unless they be made full and complete there can but little benefit be derived from them. It has been customary for the secretary to send blanks to the town vice-presidents, in each December, but I have not done so this year, as judging from the past, I considered that subject one which should be brought before the board of managers.

JOHN E. POUND,
Secretary.

Lockport, N. Y., *January* 5, 1869.

ONEIDA.

Clinton, *March* 2, 1869.

Secretary New York State Agricultural Society:

Dear Sir—The annual meeting of the Oneida County Agricultural Society was held at Hampton, January 5th, at Hamilton's hotel. The attendance was large. The exhibition of fruits and grain was small, and yet of good quality. The society was called to order at 11 o'clock by the President, O. B. Gridley. Committees on the various exhibited articles, and on the nomination of officers for the ensuing year were appointed, when the society adjourned for dinner.

At three o'clock the society met again, and the nominating committee made the following report, which was unanimously adopted:

President, John H. Wilcox, Rome; 1st Vice President, John L. Dean, Westmoreland; 2d Vice President, John Butterfield, Jr., Utica; Secretary, Roderick Morrison, Clinton; Treasurer, James Elwell, Rome; Executive Committee: George Benedict, Verona; Dr. F. T. Henderson, Whitestown; Thomas D. Penfield, Camden;

R. G. Savery, Annsville; George Williams, Delta; J. M. Stebbins, Kirkland; Henry Rhodes, South Trenton; Luke Coan, Westmoreland; H. Rouse, Marshall; Mark Cheney, Rome.

The treasurer's report was submitted as follows:

1868.

January 10,	Cash by	balance for the year 1867	$885 06
September 25,	"	memberships	687 00
	"	rent of grounds	193 00
	"	citizens' purse	52 50
	"	entrances for trotting	30 00
	"	sale of tickets	638 96
November 1,	"	State treasurer	636 52
			$3,123 04
		Total amount paid out	2,074 75
		January 4, 1869, Balance on hand	$1,048 29

Yours respectfully,

RODERICK MORRISON,

Secretary.

ORANGE.

To the Secretary of State Agricultural Society:

The transactions of Orange County agricultural society, for the year 1868.

Jason W. Corwin, Treasurer, in account with the Orange County agricultural society, Dr.:

1868.

Money received from	State appropriation	$190 00
" "	first day of fair	412 00
" "	members' entries	104 00
" "	special "	47 50
" "	second day fair	239 50
" "	special entries	106 00
" "	rent of stand	15 00
" "	rent of Hall	110 00
" "	individual subscription	145 00
" "	Society for Improvement of Horses for use of grounds	170 00
Balance due treasurer		140 16
		$1,679 16

Cr.

Paid late treasurer	$285 66
" premiums	848 00
" other expenses, labor, &c	545 50
	$1,679 16

The following are the officers of the Orange county agricultural society, for 1869: President, Ellis A. Post, Goshen; Vice-President, H. Morrison, Montgomery; Treasurer, J. W. Corwin, Goshen; Secretary, Geo. W. Millspaugh, Goshen; Assistant Secretary, H. V. D. Hoyt, Goshen.

Respectfully, yours,

GEO. W. MILLSPAUGH,

Secretary.

ORLEANS.

The twelfth annual fair of the Orleans County Agricultural Society was held at Albion, September 17th, 18th and 19th, 1868.

The receipts during the current year, exclusive of the State appropriation, are	$1,543 10
Add surplus on hand, December 20th, 1867	21 30
" State appropriation	93 75
	$1,658 15

The disbursements the present year are as follows:

Paid premiums	$771 00
" on debts	314 00
" current expenses, &c.	463 50
	$1,548 50

Leaving a balance of $109.65 in the treasury.

SAMUEL W. SMITH,

Secretary.

Albion, *December* 1*st*, 1868.

OSWEGO.

Mexico, *December* 30*th*, 1868.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

Dear Sir—Herewith I beg to hand you a copy of the annual report of receipts and expenditures of the Oswego County Agricultural Society, as reported at the annual meeting this day.

I also inclose the customary affidavits of the officers as to premiums paid.

We have expended for a new building this year.....	$1,056 50
Less amount received.....	13 00
	$1,043 50

And have borrowed only $300, less cash on hand, $52 25. We have now twenty-four acres of land valued at $2,400. Hall, eating house, treasurer's office, &c., cost $1,800; new building cost $1,043; and we are in debt $300, in addition to the $250 above. With this new building we have now room enough to house everything necessary to be kept from the weather.

Hereafter our attention will be paid to decorating and adorning our grounds, and to make them attractive. Our neighbors need culture in landscape gardening and picturesque effect.

We have also given subscriptions to the American Agriculturist as premiums, and have a number who have chosen them in preference to money.

Very respectfully, your obedient servant,

H. L. DAVIS,

Secretary.

OTSEGO.

The fair of 1868, was the thirteenth exhibition of the society held under the new organization, and upon the present location. During this period these public gatherings of our farmers have been attended with remarkable success. On but one occasion have we been obliged to postpone the fair on account of the weather, and then the result was entirely satisfactory in the end, and in no other year has the weather been such as to seriously interfere with the out-door enjoyment of those who have attended our annual festival.

Comparing this with the fortunes of some of our kindred societies, we might say that we have reason enough to be satisfied with our position in the present and our history in the past. But unless we can show some substantial gain year by year, not only in the number of members and in the receipts of the treasury, but also in actual benefit to the agricultural interest of the county, aside from that which would naturally come in course of time without any such organization as ours, we must admit that we have not been entirely successful in achieving that for which we are organized.

The pecuniary results to the society and the popularity of our annual gatherings are unquestioned; and the fact that there are at least *four* town organizations within the limits of the county, which have sprung into existence during the past ten or twelve years, is sufficient evidence of the strength and influence of the parent society. This fact alone would seem to be conclusive as to the beneficial working of the county association in one respect at least, and if there has been a corresponding advance in agricultural science and practice, we must be satisfied that our labors have not been in vain.

That there has been a marked improvement in the various branches of agricultural industry during the past fifteen years, no one will deny. That the society has had some share in promoting this advance, is equally certain, although there are doubtless many other influences at work to bring about this result.

The steady advance in the price of land, and of late years in the price of labor, and all the implements and tools of the farmer, has necessitated a more thoughtful and careful study of agriculture as a profession, and this has led to correspondingly better crops, more perfect animals, and marked improvements in agricultural machinery.

As the country fills up year by year; as the influence and wants of the large cities and towns become more extended; and as the increased railroad facilities bring us nearer to the markets, so will the character of our farming change, and of a necessity improve and advance, unless we are willfully blind to our own interests, and stand supinely still while all the world moves on around us.

Let it be the aim and study of the Otsego County Agricultural Society to be foremost in every good work, and so elevate the standing of our farmers and our farming, that we may maintain a leading position among the kindred associations of the State.

RECEIPTS.

	January 1, 1869.
Balance of cash in the treasury January, 1868	$942 11
Amount received from life memberships	10 00
Interest on United States bonds	210 30
Cash from 835 members	835 00
Cash received at the ticket office	1,401 24
" " for rent of refreshment stand	100 00
" " for rent of fair grounds	115 00
" " from State treasury	360 75
" " from advertising in pamphlet	17 00
	$3,991 40

EXPENDITURES.

	January 1, 1869.
Secretary for services, 1867	$25 00
Premiums for 1867	45 00
" of fall fair, 1868	1,150 00
" of winter exhibition	75 00
Hardware and other bills	170 16
Printing, stationery, and postage	254 79
Music, police, and expenses of fair	532 26
Mechanics' bill and lumber	67 50
Rent of grounds	80 00
Water company's bill	8 00
Amount invested in United States bonds	846 00
Paid express on books	4 40
Balance of cash in treasury	733 29
	$3,991 40

The officers for 1869 are: President, Henry Roseboom, of Roseboom; Secretary, Horace M. Hooker, Cooperstown; Treasurer, Frederick G. Lee, Cooperstown.

HENRY ROSEBOOM,
President.

PUTNAM.

The undersigned, the president, secretary and treasurer of the Putnam County Agricultural Society, do respectfully report, that the annual fair of the society was held on the 16th, 17th and 18th days of September, 1868, on the society's grounds, in Carmel, and was in all respects a complete success. The show of live stock was good, and the spacious building of the society was filled with the agricultural products of the county, and with specimens of mechanical skill of rare excellence.

The receipts of the society for the past year were:

From State Treasurer	$47 50
From proceeds of subscriptions, &c., at fair	1,941 53
From life memberships	190 00
Other donations	56 00
Total	$2,235 03

The expenditures have been:

Premiums paid	$1,154 25
Police and clerks at fair	224 50
Rent and repairs	175 00
Printing	39 90
Trimmings, &c., at the fair	79 98
	$1,673 63

DANIEL D. CHAMBERLAIN, *President*,
GEORGE W. GREGORY, *Secretary*,
AMBROSE RYDER, *Treasurer*.

Dated at Carmel, *December* 31, 1868.

QUEENS.

Under the good providence of God, who has promised us a return of seed time and harvest so long as the world endures, we have been brought to the close of another year's labor and duty, and it becomes us to review the same, so that the cause of defects may be traced and removed, and success established. Experience proves that the sphere of our operations is by no means narrow, or our object unworthy intelligent and increased effort; and while our present success is highly gratifying to us as a society, we must remember that, ere we reach the standard to which we aim, many difficulties must be met and deficiencies overcome. It is the duty of the board of managers to manage the property and concerns of the society as will best promote the interest of agriculture, horticulture, the mechanic arts and household industry, and by so doing we shall elevate the condition of our farmers, and, at the same time, add to the comfort and well-being of even the humblest classes of society.

At the last annual meeting the constitution was so amended as to admit non-residents to membership, with the privilege of competing for premiums. The necessity for this change has been long apparent, and it has been found to work to the benefit of the society. Several professional fruit growers from a distance have exhibited with us, thus giving our members an opportunity of examining many fine fruits grown at other places, and comparing them with those grown here. Many other articles from distant places have also been exhibited, which will no doubt be found beneficial to the county.

The advantages of a permanent location have been fully demonstrated; we are no longer compelled to follow an itinerant life, holding annual exhibitions with inadequate accommodation for all and every class of exhibitors, expending money in erecting unsuitable buildings, which in a few days were torn down, the lumber sold at half price, and the cost of labor nearly all thrown away. When we look back at our imperfect system, pursued so many years, we wonder that the society was enabled to maintain an existence at all. For the first twenty-five years we may be considered to have led a pioneer life, camping out, clearing up the way, and sowing the seed which has resulted in our present success; and although at times discouraged, we always maintained a believing conviction that the intelligence and wealth of old Queens would, at some distant day, place our society in the foremost rank as the first county agricultural society in the Empire State.

Another advantage of having a permanent home is evident by the increase of exhibitors, resident and non-resident members; for, notwithstanding it rained every day during our late exhibition, the receipts from members' dues and entrance tickets exceed those of last year; our friends find that stock entrusted to our care can be comfortably taken care of, and the property of exhibitors securely kept.

Some of our friends thought that Mineola would not be the most suitable place for a permanent location, and the argument used against its selection was, that it was too far from the cities of New York and Brooklyn to secure the attendance of visitors from those places. The result, however, proves different.

In 1862 the fair was held at the Fashion Course, extra efforts were made to secure a large attendance, special premiums to the amount of $470 were donated, yet the receipts from New York and Kings county members amounted to only $165. Again in 1865, at the same place, with special premiums of $400, beautiful weather, and among the attractions many of the most valuable horses in the State, the receipts from all the non-resident members amounted to $161. Three fairs have been held at the permanent grounds, and the total receipts from non-resident members, principally from New York and Kings counties, foot up the handsome sum of $1,407.

Let us contrast our present home, with its finished buildings and accommodations, with its closely mown lawns, its railroad facilities, its varieties of deciduous and evergreen trees, with our former nomadic life, with tents at the best, or the objectionable hemlock board con-

structions, and who will not at once recognize the refining influences of our present well furnished grounds, incomplete as they yet are.

Agreeable with the suggestion made by the retiring president, in his annual address last year, the board of managers resolved to discontinue the issue of family tickets, except to life members, and to substitute an annual member's ticket, accompanied with three passes, with the privilege of entering any article or stock for competition; also for ladies to enter any fancy articles or needle-work free with a pass on the grounds during the fair. The privilege in both cases to extend to those only who purchased, or made entries before the exhibition. It was thought that this plan, so equal in its operations as regards members, would have been received with general favor, especially as it closed up the main avenue of imposition to which the society had been so long subject—at the same time, it offered an inducement to purchase tickets before the fair from the officers and town committees, thus placing us in possession of a more reliable revenue in case of disaster. We cannot think that the objections to this improved plan are made by those desirous of promoting the best interests of the society. If, however, it is found to work to our disadvantage, the resolution can be amended. Few societies are more liberal than ours. We find, on examining various premium lists sent us, that it is customary to charge one dollar for entries in each class, except for horses, for which three dollars are claimed, and when the premium amounts to fifty dollars or more, ten per cent. extra is charged. In our society, for one dollar paid, a person receives a member's ticket, with three extra passes worth ninety cents, making the actual cost of the tickets only ten cents, with the privilege of entering any articles or stock for competition in all the classes, and for an extra dollar a member's carriage ticket, giving the right to drive weekly on the grounds, and every day during the fair. There cannot surely be many who desire more liberal arrangements, when the expense of keeping the grounds in proper condition is taken into consideration.

Two years ago the debt of the society amounted to $9,500. It has been a matter of principle with us to reduce the debt as fast as possible, in justice to those from whom the money was borrowed to construct the buildings and improve the grounds. During the past year $3,000 have been paid off, and within eighteen months $4,500 of our indebtedness has been canceled, besides paying for the various improvements made since the debt was contracted. "Out of debt

out of danger" is a good old proverb. It brings with it the usual expense of interest, which is an imperative obligation, to be discharged annually; and to meet this interest we have had to economize in many particulars and forego many needed improvements. We hope to see this debt removed, for we cannot help thinking, that in a country like ours, abounding in wealth and liberality, the remaining sum of $5,000 could be liquidated in a short time if some of our public spirited men would take the matter in hand. Our farmers have been the most prosperous class in the past few years, and have relieved their farms from mortgages that have been a dead weight for a long time. Let us follow their example and extinguish the debt, and consequently the interest, at the earliest day possible, thus leaving a clear field for those who may come after us.

We greatly need a dining hall. Considerable difficulty is experienced in finding proper persons to cater for the public, or even the committees of the society, with the present accommodations; and it is hoped that the wisdom of the board of managers may, at an early year, supply this needed want.

By referring to our premium list it will be found that during the past two years it has been greatly increased, and we see no reason why it should not be still further increased, at least to an amount equal to the interest on the debt now canceled.

We highly recommend, so soon as the present debt is liquidated, that a portion of the annual receipts be set apart and invested as a permanent fund, the interest of which may be used in seasons when the receipts from any cause may be less than the expenditures. At our past exhibition, had it not been for the plan of recruiting our finances by an early sale of tickets, and the donation from the ladies' festival, we might have been placed in an unenviable position. A writer in the *Country Gentleman* very wisely remarks that:

"An association of any kind which is conducted on the principle of keeping its expenses as nearly as possible in a parallel line with its receipts, is always poor. In times of difficulty it finds that the former run on very much as usual, while the latter are more or less seriously diminished; and whenever a period of comparative prosperity occurs, it is strange if the enthusiasm of the management does not discount the probabilities of the future on the hopes of the present, and enlarge the outgo even in a worse disproportion than ordinary to the increase of income. Under such circumstances a society cannot hope to secure permanent continuance and extended influence for

itself; for, after all, pecuniary independence is the first stepping-stone to the effective and honest accomplishment of any purpose.

"In this respect we are reminded of the great difference that exists between our agricultural societies and those of Great Britain, by a statement just published, showing the financial condition of the Royal Agricultural Society of England now, as compared with nine years ago. The property of that society in December, 1859, was invoiced at £13,342; it is now £26,382, having been *doubled* during the period in question. Of this amount about £18,000 was invested on interest, the remainder being cash on hand and other property.

"It must readily be perceived how the field of usefulness open to such a body becomes wider and wider as the means at its control are thus enlarged. On the other hand, we find too many of our societies descending to any sort of catch-penny operation that may chance to take the public eye, in order to keep up their receipts, while the instances are rare indeed in which there is a reserved fund yielding anything to support current efforts, or on which dependence can be placed in case of disaster."

By an act of the Legislature, passed April 17th, 1862, county agricultural societies, in order to receive the annual appropriation of money and books, or either, are required to procure the collection of agricultural and horticultural products in their respective counties, and forward the same to the Secretary of the State Agricultural Society. We have found it a very difficult matter to perform this duty. In some towns we have received two or three reports; from no town more than five or six, yet it should be taken in each school district. The consideration is a copy of the Transactions of the State Society and American Institute. The necessary blanks have been received, and we ask for volunteers in each school district to assist us in this duty.

Although we make no pretensions to landscape gardening, it will be admitted that the trees and shrubs now planted bid fair to add greatly to the beauty of the grounds, and will in a few years afford ample shade. The experiment will pay, if it is only to demonstrate the falsity of the common saying, that "Trees will not grow on the Hempstead Plains."

It is true that we have somewhat departed from the old plan of "digging a small hole, and then cutting off the roots to fit it," but so far our experiments have been successful. It is now two years since we commenced planting, and the last winter was a severe one, yet

very few trees have died. This year we have planted trees around the "drive," in front of the cattle stalls, and at the south end of the grounds. In a very short time the large tract of land known as the Hempstead Plains will be offered for sale; what we have done by way of tree culture will be made available to the purchasers of those lands who by examining those now growing on the grounds, can at once ascertain the kind of trees suitable to the soil and climate. We have planted out the various kinds of maples, elm, ash, magnolia, linden, pepperidge, oriental plane, walnut, larch, and some new varieties of willow. Of evergreens—Austrian, Scotch, stone and Weymouth pines; Norway spruce, yew, juniper, hemlock, arborvitæ, &c. They have all been well cultivated, and by the liberal donation of H. A. Peck & Co., New York, have received a bountiful supply of manure.

Among the general improvements made this year, may be mentioned a double row of cattle stalls, with office for superintendent; convenient coops for poultry, with suitable office for superintendent; painting the fronts of seats and stables, judges' stand, and part of the outside fence; grading the grounds and improving the drive; the various additions costing the sum of $780.85, all of which have been paid for.

Nearly seven acres of land at the south end of the ground remain to be fenced in. We recommend that this be done at an early day. We shall require for the same about 125 locust posts, twelve feet long, not less than four inches at the small end, clear of bark. This will finish our fences, give us more room for hitching posts, and, to those desirous of obtaining carriage sheds in that locality, nearly forty more carriage sheds.

DONATIONS, 1868.

Mrs. Elizabeth T. Hicks, from ladies' festival		$728 64
Subscriptions toward painting fences, by B. D. Hicks		70 00
Wm. P. Douglas, special premium		35 00
Benjamin D. Hicks,	"	10 00
Peter C. Barnum,	"	10 00
Horatio S. Parke,	"	25 00
Wm. P. Douglas, returned premium		25 00
Robert Morrell,	"	17 00
H. S. Parke,	"	35 00
Peter C. Barnum,	"	18 00

William H. Dannat, seventy-five maple trees.

Benjamin D. Hicks, five trees.

H. A. Peck & Co., New York, five car loads of manure.

I. D. Barton, freight of five car loads of manure.

Hon. John Fox, M. C., 100 volumes of books.

Hon. Stephen Taber, M. C., forty-five volumes of books.

Samuel B. Mersereau, map of Queens county.

Oscar Darling, map of Flushing.

E. P. Willets, two loads of ice.

Mrs. P. C. Barnum, one pennant.

Bloodgood H. Cutter, ancient fulling shears.

Mrs. P. C. Barnum, from ladies' festival, variety of furniture, glassware and crockery.

Henry G. Powers & Co., framed view of their factory.

Benj. D. Hicks, "The Poultry of the World," framed.

Parsons & Co., flowers for bouquets.

D. Higgins & Son, flowers for bouquets.

Benj. D. Hicks, seven loads of evergreens.

T. Treadwell, three " "

George P. Titus, two " "

I. H. Cocks, one load "

Mrs. P. C. Barnum, one " "

Carting, Work, etc.

Benjamin D. Hicks,	man and	team,	15 days.
P. C. Barnum,	"	"	3 days.
Henry Walters,	"	"	2 days.
R. E. Thorne,	"	"	2 days.
Benjamin Hunt,	"	"	2 days.
C. W. Rogers,	"	"	1 day.
John L. Mott,	"	"	1 day.
George P. Titus,	"	"	1 day.
Alexander McCoy,	"	"	1 day.
C. E. Cornell,	"	"	1 day.
George H. Horsfield,	"	"	1 day.
William U. Horsfield,	"	"	1 day.
Harvey Pettit,	"	"	1 day.
Thomas H. Clowes,	"	"	1 day.
Scudder White,	"	"	1 day.

Horticultural Exhibition.

The second annual horticultural exhibition was held June 24th, 1868. The attendance of visitors was very great, and the large hall

was crowded to its full capacity. The show of flowers was exceedingly fine, and surpassed the expectation of our best friends.

FLOWERS.

The first premium for a design was awarded to William Supple, of Manhasset. It was a ponderous affair, and consumed a large amount of flowers in its construction. The public seemed to differ with the judges, and expressed a preference for the design of "Hope," by Mrs. I. H. Cocks, of Westbury, the conception of which was evidently the work of a refined mind, and the execution in excellent taste. It represented a floral anchor, firmly fixed on moss covered rock-work, and was generally admired. Alfred Bridgman, Astoria, first premium for 150 varieties of roses, correctly named; William A. Burgess, Glen Cove, best perpetual roses and verbenas; Daniel Higgins, and Parsons & Co., Flushing, best cut flowers and roses; Isaac Hicks & Son, Westbury, best house plants. Very neat floral designs were also exhibited by Mrs. B. Albertson and Miss Kate Seaman, North Hempstead.

FRUITS.

Premiums on strawberries were awarded to Prince & Co., Flushing; John A. King, E. H. Bogert, D. H. Burdett and T. W. Albertson, North Hempstead; grapes, T. Kennard, Glen Cove, by George Lucas, gardener; peaches and nectarines, John Nix, Hempstead; gooseberries, Benjamin Hunt, Hempstead.

VEGETABLES.

Best collection, Daniel H. Burdett, Sands' Point; potatoes, George Lucas and Isaac Hicks & Sons; asparagus, George R. Underhill; cucumbers, John A. King; rhubarb, S. C. Underhill; peas, Thomas Messenger. Forty-six premiums awarded, including cash, amounting to $155.

In addition to the horticultural exhibition, the ladies of the county held a festival on the occasion, under the charge of the wife of the president, the result of which was eminently successful, realizing the handsome sum of $728.64, which has been appropriated toward reducing the debt of the society.

THE TWENTY-SEVENTH ANNUAL EXHIBITION

Was advertised to be held on the 22d, 23d, and 24th of September. Each of those days being rainy it had to be continued on the 26th,

in order to award premiums on several classes of horses. Notwithstanding the rain, the attendance was much better than could have been expected, especially on the 24th, when the grounds were closely packed with visitors, and every hitching post occupied. The best order prevailed, and the police arrangements, under the charge of Sergeant Ashton, with a detachment of metropolitans, were excellent; not a single case on the grounds requiring their assistance. The "drive," during the days of the fair, was in a heavy condition, which deterred many having horses on exhibition from showing them in the style they desired.

The arrangements for cattle, horses, sheep and swine, were judiciously managed. All the stables and stalls were well littered, and a bountiful supply of hay placed in each manger before the fair, and ample means provided for watering the stock.

Cattle.

More cattle were entered than last year, and the stalls, including those built for working oxen and steers, were nearly full; but the quality was not equal to former shows, except Alderneys and working cattle.

Short Horns.

Special premium for best bull, cow and heifer, from one herd, was awarded to S. T. Taber, for "Bright Eyes Airdrie," "Cascade" and "Sewanhaka," as also the single premiums to the same animals. James Johnson, Flushing, best two year old bull; Samuel Wanser, Greenvale, best one year old bull. Cows, to Wm. P. Douglas, Douglas farm; heifer, to W. H. Pelcher, Great Neck. Herefords, four premiums to Wm. Norton, Hempstead. Ayrshire, E. O. Perrin, Jamaica, for "Rob Roy;" and Edwin A. Hopkins, Glen Cove, for heifer, "Ella." Alderney, H. S. Parke, for bull, "Hero," and cow, "Jessie;" E. A. Conklin, bull, "Fashion;" James Quin, bull, "Bismark;" Richard Ingraham, best bull and heifer calves.

Grades and Natives.

Wm. P. Douglas, best cow; S. T. Taber and Luther Weeks, best heifers; Benjamin Hunt, best calf; Wm. P. Willets, best milch cow; Gelston Smith, best working oxen; Geo. H. Horsfield, best three year old steers; Samuel Wanser, best two year old steers and fat steer. Forty-six premiums awarded, amounting to $313.

HORSES.

In consequence of the inclement weather many horses entered in several of the classes did not appear when called. *Stallions*—First premiums to those owned and bred in the county were awarded to Daniel Y. Jones, for "Pearsall;" H. S. Parke, for "Douglas;" P. S. Henderson, for "Mercury;" Sam Wanser, for "Long Island Chief;" H. S. Parke, for "Slasher." *Stallions open to all competition*—First premiums to Geo. W. Mumby, Brooklyn; Benj. F. Rhodes, Atlantic, and F. N. Lawrence, Bay Side. *Brood Mares*—James R. Willets, "Madge;" Wm. Alfred Willis, "Nellie." *Matched horses for carriage or road, bred in the county*—Latham J. Mitchell, Manhasset; David Jones, Oyster Bay. *Matched carriage horses open to all competition*—Daniel T. Willets, Brooklyn. *Matched horses for all work*—R. E. Thorne, Little Neck. *Saddle horses, trained for ladies' use*—Thomas B. Pearsall, Glen Cove. *Saddle horses, open to all competition*—Wm. P. Douglas, "Lillie;" Daniel Jones, "Peacock;" James H. Powers, "Phil Sheridan." *Geldings and Mares*—Thomas T. Jackson, "Rosa;" Peter H. Layton, "Lady Alice;" John Bennan, "Woodpecker;" Valentine Willis, "Flora;" Edward Morgan, "Tempter." *Geldings and mares open to all competition*—John B. Pettit, "Suffolk County;" James Porter, "Village Maid." *Mules*—Thomas Whitson. *Ponies*—Edmund P. Willets.

The judges were sustained in their decision in not awarding premiums to speed only.

Forty-seven premiums; amount $391.

SHEEP AND SWINE.

The show of South and Hampshire Downs was extremely good. Robert Morrell, of Plandome Farm, exhibited several fine Hampshire Downs, which elicited general admiration. In this department Mr. Morrell is one of the oldest and most successful exhibitors of whom the society can boast, having for years added largely to the attractions of our fairs, and always bearing off the palm. Richard Albertson and Wm. P. Douglas, best South Downs; Wm. P. Douglas and P. C. Barnum, best cross-breeds. *Swine.*—Charles Valentine, Chester Whites, Wm. H. Pelcher, Berkshires; Epenetus Titus, fat hog; Wm. C. Walker and John Nix, best grass breeds.

Poultry.

The show of poultry was very large, exceeding anything of the kind ever before seen in the county. P. C. Barnum received first premium for greatest and best variety. Elbert H. Bogert, Daniel Brinkerhoff, G. H. Leavitt, J. S. Van Wyck, and Samuel Willets, also received premiums for the best. Twenty-nine premiums awarded.

Domestic Department.

This new department has been received by the ladies with general favor, and the entries of articles for competition were quite numerous, consisting of butter, bread of all kinds, cake, pies, jelly, merange, preserves, canned, dried and preserved fruits, pickles, wine, cordial, cider and vinegar. Thirty-four premiums were awarded. Mrs. S. Burt, best butter made by adult; Miss H. Whaley, for butter made by girls under twenty-one years of age. Premiums for bread to Mrs. Coles, Oliver, Ketcham, and Miss Burt. For cake, Miss Mary A. Titus, Miss D. Armstrong and Mrs. P. W. Albertson. *Jelly*—Miss M. L. Anderton, Miss M. E. Titus, Mrs. D. B. Whitney, and Mrs. Albertson. *Canned and other fruits.*—Mrs. C. Carman, Weeks, Whitney, Van Wyck, and Miss M. Allen. *Wine.*—John Harold, for Norton's Virginia seedling, and N. Luqueer, for Isabella. *Cordial*—M. E. Titus. *Vinegar*—E. H. Bogert.

The articles were mostly of superior quality, and the long tables covered with the choice and delicate products were surrounded by an admiring audience, who seemed longing for an opportunity to pass their private judgment on the merits of the good things presented.

Grain.

Jordan L. Smith, best white wheat; W. F. Oliver, best red wheat, barley and buckwheat; J. S. Van Wyck, best rye; Wm. P. Douglas, best oats; John L. Mott, best timothy seed; A. R. Duryea, best white corn; H. C. Richardson, best yellow corn; Robert W. White best sweet corn; Samuel Powell, best lima beans; Wm. A. Allen, best cranberry beans; Charles S. Demott, best rye and Graham flour; W. F. Oliver, best wheat and buckwheat flour. Edward S. Seaman exhibited a bundle of timothy heads fourteen inches long.

Vegetables.

Forty-four premiums awarded, including seventeen for potatoes. The Glen Cove Farmers' Club made their usual good display, and

carried off many well contested premiums. It would occupy too much room to describe all the articles presented; suffice it to say that the east wing of the hall, 40x40, was closely packed, together with a portion of the south wing; and large quantities remained in baskets, for which we could not find room. The show of potatoes was the best ever witnessed in the county. Isaac Hicks and Son, best and greatest variety, including very fine Early Rose. H. Luther Weeks, twenty-seven varieties. A. Thomas, of Westbury, exhibited Garnet Chili, which produced at the rate of 421 bushels to the acre; this, however, was an extraordinary yield.

One of the most important objects of cultivation in our county, and one which possesses a common interest for all our resident members, because a leading crop to the cultivation of wheat and grass, viz., potatoes, has, during the past year, attracted the special attention of our farmers. Living as they do near the metropolis of the State, a ready market has been opened by facility for shipment to other ports, and home consumption for all the surplus raised in the county. Several new and valuable varieties have been brought forward and well tested; but, so far, none have excelled the Garnet Chili for shipment and keeping qualities. The Harison, however, is handsomer in shape and color, and about two weeks earlier than the Chili; the average yield about 270 bushels; very healthy; uniform in size, and is thought to be a good keeper. Among the early varieties the Goodrich and Samaritan have not come up to their former standard, owing, probably, to the attack of the potato bug in July. The Early Rose, so far as tried, is thought to be about two weeks earlier than the Goodrich; yield about 230 bushels; their general appearance does not commend them for family use so much as the Goodrich or Harison; they have not been fully tested to decide on their merits.

As might have been expected among so many exhibited, some kinds were only of medium quality. The old fashioned Mercers exceeded those shown for several years, and little complaint has been made of rot.

CARRIAGES, IMPLEMENTS, &c.

The show of farm wagons, carriages, &c., was the largest and best ever exhibited. Henry G. Powers and Son, of Brooklyn, received the premium for best display; among them were several very fine carriages and wagons. E. H. Tuthill, Port Jefferson, second premium for greatest variety. Henry Belzler and Alfred Wilkie, for single

wagons. *Made in the county*, best market wagon—Martin Muller; John W. Southard, best farm wagon; I. and J. I. Waldron, best buggy. A very excellent farm wagon, made by Samuel Verity, of Seaford, at the age of eighty-six, was exhibited. It had not been painted, and the judges considered it a superior article, and awarded special premium.

The usual quantity of farm implements were exhibited. First premium for best display, to James F. Hegeman; to the same, for the best made mower, "Buckeye;" Thomas E. Pearsall, best self-raker and reaper, "Woods;" H. Moore, for riding plough. E. J. & A. W. Jerome exhibited a number of valuable implements; Russell Crampton, an ingenious dumping wagon.

Among the implements exhibited was a harrow, invented by F. Nishwitz, of Williamsburgh. This harrow was successfully tested at the trial of implements by the New York State Agricultural Society, at Utica, last year, and from the report of the judges we extract the following:

"It is exceedingly ingenious in its construction; and if not entirely unique, we have never met with any similar one, nor have we met with any description of anything resembling it.

"It consists of two expansible arms, hinged in front, and contiguous to each other. They are expanded behind to any desired width by circular arms, springing laterally and inwardly from the main arms, at a point two and one-half feet behind the angular point. These pins pass one above the other, and are secured at any desired expansion by a pin thrust through them both. The main frame is of oak, eight inches wide and two inches thick. It runs on wheels twenty inches in diameter and two and one-half inches wide, which are placed on a crank axle, the arms of which are five and one-half inches long, and which regulate the depth.

"The effect of this machine as a pulverizer was astonishing. It worked most effectively diagonally across the furrows, going across one way and returning at a reverse angle, so as to cut the furrow diamond-wise, reducing it to a powder like flour. It also worked most admirably in scarifying sod. It makes one of the most perfect implements that can be imagined for mellowing the surface of moss-bound meadows, and for scarifying meadows and pastures where the grass is run out, which it is desired to re-seed without plowing. It is not well adapted to level uneven land or to cover seed, but as a superficial pulverizer we cannot speak too highly of it.

"As it is designed to meet a difficulty in practical husbandry which no preceding machine accomplishes as well, we recommend to the executive committee to award a special gold medal to Mr. Nishwitz for this invention."

The board of managers awarded a diploma and a premium of $5 to the "Clipper," for the best mowing on the Society's grounds, four machines being in operation. The machines used on the occasion were not new, or made for trial, but were owned by farmers, and had been in use not less than one year. The mowing was paid for by the society, and the only instruction was, each person was to take his own time and do the best work he could; no expectation of a premium was held out. The grass was what was locally termed "plain grass," and an opportunity was afforded to test the common saying that "a machine that could mow *plain grass* well could mow any other grass, be it ever so much down." The "Clipper" and "Buckeye" were driven by lads about eighteen years of age, each of whom seemed to be desirous of performing the best work. The "Buckeye" had the best ground to go over, and after a few bouts used a new knife, well ground, but the motion was not quick, and it frequently clogged up with secretary grass. The "Clipper" had more rolling ground to go over, and a large number of trees to pass round; the swath was about six inches wider, closer, and more evenly cut, and apparently requiring little labor from the horses.

Fruit.

The season afforded a limited prospect of even a fair show at the fall exhibition of apples or pears, and the entries took us by surprise.

In the Professional List.—Apples—Benj. H. Hart, Poughkeepsie, received first premium for 40 varieties; Isaac Hicks & Son, best 20 varieties. *Pears, best* 20 *varieties*—Elwanger & Barry, Rochester. *Grapes*—Isaac Hicks & Son, Westbury.

Amateur List.—Apples, best 20 *varieties*—James P. Smith, Lakeville; 10 *varieties*—T. W. Albertson, Mineola. *Pears, best* 10 *varieties*—John A. King, Great Neck. *Native grapes, best varieties*—John D. Hicks, Westbury. *Peaches*—Jacob Smith, Centre Island. *Peaches and nectarines*—John Nix, Hempstead. *Quinces*—Jarvis Mott, Farmingdale.

The main feature of attraction was the superb pineapples and hothouse grapes from T. W. Kennard, Glen Cove, by George Lucas, gardener; watermelons, S. M. Titus, Glen Cove. Thirty-three premiums awarded.

Flowers.

The show of flowers yearly increases, and additional room must be provided to accommodate exhibitors. *Best cut flowers*—Wm. A. Burgess, Glen Cove. *Dahlias*—A. G. Burgess, East New York. *House plants and flowers*—Isaac Hicks & Son, Westbury. *Floral designs*—Wm. Supple and Anna Willets. *Parlor bouquets*—Emily Post. *Verbenas*—Wm. P. Douglas. *Marigolds and dahlias*—Henry Beare, Hempstead. Twenty-two premiums awarded.

Ladies' Needlework and Fancy Goods.

The rule adopted of giving ladies the privilege of entering articles the week previous to the fair, free of charge, has resulted in a success. Nearly three hundred entries were made, and additional conveniences given to exhibit the articles. The plan pursued this year to prevent articles being delivered to the wrong person, viz., to give a check at the time of making the entry, with the number of class and entry, signed by the superintendent, with a corresponding check in the entry book, and when the article was called for the parties to produce the check, and give their name and describe the article, which, if found to agree with the entry book, the article was delivered, has been found to work well; and no calls have been made for goods missing. Seventy-four premiums were awarded to ladies, but we have not space to enumerate them. They comprised knitted socks, the most elaborate silk embroidery, plain needlework, worsted and muslin embroidery, knitting, netting, crochet, wax flowers, shell and burr work, hair work, oil painting, drawings, &c.

Manufactures.

J. T. Curran, New York, superior plated ware; Atwater & Benham, japanned ware; Pitkin Institution, boots and shoes; Anthony Herkimer, silk manufactures; C. C. Sawyer, and Charles Bunce, pianos: Prince & Co., cabinet organ; Craige & Co., manufacturers sewing machine, "Wheeler & Wilson;" Thos. Hall, family sewing machine, "Florence;" George Kiersted & Son, fishing lines; W. G. Macord, row boat; James S. Carpenter, of Glen Cove, exhibited twenty varieties of sand and clay, from deposits at Carpentersville; all of which are valuable for manufacturing purposes, and used in making fire brick, earthenware, &c. Bloodgood H. Cutter, a variety of oriental articles, gathered during the expedition of the Quaker City; Gabor Napheggi, copies of the Lord's Prayer in fifty-four dif-

ferent languages; G. W. Thayer, a copy of the *Sacramento Union*, containing articles copied from the New York papers, dated thirteen days previously; J. T. Bowne, Glen Cove, exhibited the original deeds from the Matinecock Indians. Fifty-four premiums awarded.

The hall and decorations were under the charge of Mr. Jesse Bowne and assistants, for which great credit is due. The ladies' articles were in charge of Miss Kate Post, and were admirably managed.

The annual meeting of the Society was held on Saturday, September 28, when the following premium was awarded on field crops:

Elbert H. Bogert, Roslyn, diploma and $5 for crop of potatoes.

STATEMENT.

The farm is situated at Manhasset. The soil was in good condition. The previous crop was corn, manured with cow yard manure at the rate of ten two horse wagon loads to the acre. The present crop of potatoes was manured with about twenty two horse wagon loads of New York horse manure to the acre, spread on the ground, the potatoes dropped in every third furrow, or nearly three feet apart. The potatoes were cut to one eye and the sets dropped about one foot apart in the row, using two barrels to the acre. The potatoes were planted April 20, 1868. The whole lot was 2a. 1r. 25p., which yielded about 885 bushels. One acre was measured as per affidavits. The kind of potatoes planted were Harison. Harvested about Oct. 22.

Value of Crop of One Acre.

360 bushels, averaging $1.33 per bushel		$478 80
Expenses.		
Manure	$68 00	
Cost of seed	25 00	
Plowing and planting	5 00	
Hoeing and plowing	5 00	
Team work, plowing out and gathering	10 00	
Interest on land	5 00	
		118 00
Profit		$360 80

ELBERT H. BOGERT.

The statement was accompanied with the required affidavits.

The annual meeting was called to order at 1 o'clock P. M., P. C. Barnum, president, in the chair. The secretary and treasurer read

his annual report, which was adopted, and the usual number ordered to be printed.

The following committee was elected to audit the treasurer's account: John A. Searing, Robert Willets and John D. Hicks.

The following resolutions were unanimously adopted:

Resolved, That the thanks of the society are eminently due, and are hereby returned to the ladies of the county, for their kind services at the festival, for their efforts in reducing the debt, and assistance in decorating the hall.

Resolved, That the thanks of the society are returned to the donors of various articles as reported by the Secretary, and for the assistance of our friends on several occasions.

The society then proceeded to elect, by ballot, officers for the ensuing year, &c. The chair appointed William Norton and I. H. Cocks as tellers. The following were unanimously elected:

Samuel T. Taber, Roslyn, President; Charles D. Leverich, Newtown, Vice-President; John Harold, Hempstead, Secretary and Treasurer. Samuel M. Titus, Glen Cove, and Samuel B. Mersereau, Hempstead, were re-elected Directors for three years.

The constitution was amended, article 10, by inserting the following words: "No person shall be entitled to vote at any meeting of this society, unless he shall have been a member for at least thirty days previous to said meeting."

The following resolutions were then unanimously adopted:

Resolved. That the society return thanks to the retiring officers, P. C. Barnum, president, and Benjamin W. Downing, vice-president, for their efficient services during the past year.

Resolved, That the board of managers continue the yearly horticultural show.

Resolved, That the thanks of the society be hereby returned to the secretary and treasurer, the board of managers, and town committee, also the various superintendents, for their valuable services.

On motion adjourned.

Treasurer's Report, 1868.

John Harold, *Treasurer*,

In account with the Queens County Agricultural Society:

Receipts.

Balance on hand	$321 19
Reports sold	158 00
Special and returned premiums	185 00

Rent of grounds and buildings	$891 00
Donations	798 64
Entrance fees and carriage tickets	2,817 25
Life and annual members	2,969 00
State treasurer	221 81
	$8,361 89

Expenditures.

Premiums and expenses at horticultural show	$222 50
Construction account—	
Planting trees	86 95
Grading grounds	81 20
Painting fences	111 90
Cattle and poultry sheds	375 19
General construction	125 61
Reduction of debt and interest	3,507 50
Fair expenses	1,301 46
Premiums	1,545 40
Printing	214 75
Stationery	26 45
Incidental expenses	495 72
Overcharge and counterfeit bill	20 00
Balance on hand	247 26
	$8,361 89

We, the undersigned, do hereby certify that we have examined the treasurer's account, with full and complete vouchers for all expenditures, and find them just and true. The balance on hand this day is two hundred and forty-seven dollars and twenty-six cents ($247.26).

DATED HEMPSTEAD, *December* 1*st*, 1868.

JOHN A. SEARING,
ROBERT WILLETS,
S. B. MERSEREAU (for J. D. HICKS),
Auditing Committee.

During the past year Col. A. Wagstaff, Jr., has paid the sum of fifty dollars ($50) as the share of the 16th Regiment, N. Y. S. N. G., for the use of the grounds, leaving a balance due by the officers of the 6th Brigade	$100 00
Amount loaned by S. T. Taber	5,500 00
Paid to date	3,500 00
Leaving an indebtedness of	$2,000 00

Loan from Benjamin D. Hicks	$4,000 00
Paid to present time	1,000 00
Present indebtedness	$3,000 00
Total amount of debt at the present time	5,000 00
Receipts at gates and carriage tickets	2,817 25
" " " last year	2,813 09
Increase	$4 16

Received from life and annual members—		
Hempstead	$927	
Oyster Bay	470	
North Hempstead	450	
Flushing	241	
Jamaica	183	
Newtown	50	
Out of the county	648	
		$2,969 00
Last year		2,900 00
Increase		$69 00

JOHN HAROLD,
Secretary and Treasurer.

RENSSELAER.

Troy, *June 9th*, 1869.

To Secretary New York State Agricultural Society, Albany:

Dear Sir—The annual fair of our society was held, agreeably with its published programme, on the 14th, 15th, 16th and 17th days of September last, on the grounds of the society, in the village of Lansingburgh, and the exhibition, in all its departments, was, we are told, alike creditable to the society and county, and fully equal to that of any previous year. The attendance, however, we regret to say, owing to causes over which the society had little or no control, was meager enough.

Our financial condition, owing to causes alluded to above, is not what we could have wished, and yet it is by no means hopeless. We are still hopeful, and trust and believe that brighter days are before us.

In order to meet an issue of bonds of $6,000, given for the purpose of purchasing additional land for its accommodation, and for which a mortgage on its grounds was given for a like sum, as collateral security, the society has given a new mortgage (after canceling the

old one) of $5,500, the proceeds of which is deemed sufficient to pay off all its other liabilities. In other respects our financial condition is about as follows:

January, 1868,	To cash on hand.....	$20 27
	Receipts from all sources, for the year ending January, 1869.....	4,117 65
		$4,137 92
January, 1869,	Balance due E. Waters, Treasurer.....	327 94
		$4,465 86
January, 1869.	By disbursements for the year ending January, 1869.....	$4,465 86

The annual meeting of the society was held on the 19th day of January last, and the following gentlemen were, by ballot, elected officers of the society for the present year, viz: Burton A. Thomas, President; Ai Pine, 1st Vice-President; Elisha Waters, 2d Vice-President; Platt Carpenter, 3d Vice-President; A. Bills, 4th Vice-President; B. J. Van Hoesen, 5th Vice-President; Lewis E. Gurley, Secretary; Silas K. Stow, Treasurer; and twenty-four directors beside.

Though the past year has not been very auspicious for the interests of our society, permit me to say that we look forward, not of course without some misgivings as to the final result, to our next annual gathering, with pleasant anticipations. For the sake of the good cause, and especially for the sake of replenishing our exhausted treasury, we hope for a large attendance in September next; and for the comfort and enjoyments of the exhibitors and visitors, our ardent wish is that Heaven will be propitious and save us from the merciless peltings of equinoctial storms, vouchsafing to us genial sunshine and a cloudless sky.

I am, very respectfully, your obedient servant,

S. K. STOW,

Treasurer of Rensselaer County Agricultural and Manufacturers' Society.

ROCKLAND.

SECRETARY'S REPORT OF THE ROCKLAND COUNTY AGRICULTURAL SOCIETY FOR 1868.

The Rockland County Agricultural Society, held its annual fair at New City on the 30th September, 1st day of October, 1868.

The weather was fair and the attendance about as usual.

The society, for several years past, has been in the habit of holding its fairs in connection with the fair of the horse society. It was resolved this year to hold it separately, which was done.

The total receipts of the society, including dues of members, gateage, &c., were about	$652 50
Paid for premiums and incidental expenses	722 33
Due treasurer	$69 83

The following officers were elected for the ensuing year: President, Jacob V. Smith; Recording Secretary, Isaac E. House; Corresponding Secretary, A. Edward Suffern; Treasurer, Abram A. Demarest.

ISAAC E. HOUSE,
Recording Secretary.

Dated *December* 1, 1868.

ST. LAWRENCE.

To the Secretary of the New York State Agricultural Society:

The undersigned, secretary of the St. Lawrence County Agricultural Society, sends herewith the statement of the premiums awarded for the year 1868, to whom awarded, and for what purpose, as required by law.

The St. Lawrence County Agricultural Society, held its seventeenth annual fair upon the society's grounds at Canton, on the 22d, 23d and 24th days of September, and has had an extremely prosperous year, so much so that the society has discharged all of its liabilities and has a surplus of funds on hand.

The exhibition was very good indeed, in all kinds of stock and farm produce, with the single exception of cheese not being as good as formerly.

Herewith I forward to you the treasurer's account, which is a statement of the receipts and payments for the year 1868.

GEORGE ROBINSON,
Secretary.

Canton, *November* 30, 1868.

The St. Lawrence County Agricultural Society, in account with E. Miner, treasurer.

DR.

Dec. 31, 1868.	Balance due treasurer per last account	$353 57
	Paid expenses, &c., previous years	322 78
	Paid printing for 1868	269 00
	Paid expenses of fair	715 96
	Paid for repairs, &c., of buildings	175 47
	Paid premiums as per list	1,245 25
	Paid premiums for trotting	555 00
	Balance in treasury	1,696 83
		$5,333 86

CR.

Memberships at winter meeting	$33 00
Hay sold, $117 98; rent of tent, $5	122 98
Donation by H. N. Redway, Esq	5 00
State appropriation	414 38
Receipts at fair	4,758 50
	$5,333 86

SARATOGA.

To the Executive Committee of the N. Y. State Agricultural Society:

In compliance with the act of May 5, 1841, entitled "An Act to promote Agriculture," the Saratoga County Agricultural Society respectfully reports:

That the first meeting of the board of managers of this society within the past year was held on the 30th day of May last, when the time was fixed for holding the annual fair and cattle show of this society. A general superintendent was appointed at this meeting, and a resolution was adopted, inviting Governor Seymour to deliver the annual address. Preliminary arrangements were made for agricultural discussions during the fair, and vigorous measures were adopted to bring out a larger and better show in the various departments than had been displayed at previous exhibitions. The members of the executive committee in the several towns were instructed to procure the collection of agricultural statistics in accordance with the blanks furnished by the comptroller. A premium list was adopted offering awards on agriculture, horses, cattle, sheep, swine, poultry, mechanical productions, butter and cheese, agricultural implements, garden vegetables, household productions, flowers,

painting and drawing, embroidery and needle-work, canned fruit and vegetables, and on the trial of speed of trotting horses, amounting in the aggregate of money premiums, to $1,611 50, besides the third premium of a volume of the Transactions of the New York State Agricultural Society, in nearly every class.

The next meeting of the board of managers was held on the first Saturday in August, when the judges were appointed, a committee named to examine the accounts of the treasurer, several additions made to the premium list, and the questions announced by the chairman of the committee for the agricultural discussions during the fair.

The Annual Fair.

The 27th annual fair and cattle show of this society was held on the society's show grounds on the 8th, 9th, 10th and 11th of September, and was pre-eminently successful. The list of entries in the various departments was larger than usual.

The following is a comparative table of the entries in 1867 and 1868:

			1867.	1868.
Class	1,	Agriculture proper	22	26
	2,	First class horses	60	50
	3,	Second class horses	44	29
	4,	First class cattle	24	45
	5,	Second class cattle	10	21
	6,	Spanish Merino sheep	28	22
	7,	Long wool sheep	17	13
	8,	South Down sheep	..	..
	8½,	Grade coarse wool sheep	..	5
	9,	Grade Merino sheep	3	8
		Middle wool sheep	3	..
	10,	Swine	19	8
	11,	Poultry	37	33
	12,	Mechanical productions	81	36
	13,	Agricultural implements	23	26
	14,	Butter and cheese	9	9
	15,	Fruit	14	19
	16,	Garden vegetables	23	71
	17,	Household productions	31	103
	18,	Painting, drawing, embroidery and needle work	53	132
	19,	Flowers	26	35
	20,	Canned fruit and vegetables	27	28
	21,	Trial of speed of trotting horses	6	8
	22,	Miscellaneous	26	44
	23,	Foreign exhibitors	3	30

The first day was devoted exclusively to entering and arranging property for exhibition, when the grounds were closed to all but officers and members of the society. The second day was given to the exhibition. The gates were opened for the admission of visitors at 8 A. M. The entry books were closed at 2 P. M., when vacancies in the judges were filled, and the books delivered preparatory to making their examinations.

The third was the great day of the exhibition, and notwithstanding the rainy and unfavorable weather of this and the previous day, the attendance was larger than at any previous exhibition of this society, and long before noon the show grounds were well filled with the multitude of people who had come in from all parts of the country to witness the exhibition, and to see and hear the distinguished gentleman who had kindly consented to address the society on this occasion.

The society was called to order at 2 P. M., of this day, by the president, upon whose invitation the Rev. P. B. Day, of the Congregational church, offered up a devout prayer for the peace and prosperity of our beloved country, and the happiness of the whole people, at the conclusion of which, the president of the society announced the speaker in the following befitting and appropriate words:

"LADIES AND GENTLEMEN, AND FELLOW FARMERS OF SARATOGA COUNTY—I must first congratulate you upon the success of our annual fair. It demonstrates that we have not yet lost our interest in agriculture and its kindred vocations. Next year let us improve upon this, and if possible fill up these buildings fuller, and add to the number of our other exhibitions. These fairs should be made a sort of farmers' festival, when we all meet for mutual enjoyment and improvement; a time of hand-shaking and cordial greetings, which the farmer can so well appreciate. And now, fellow citizens and ladies and gentlemen, I have the pleasure of introducing to you one of the foremost sons of New York, a gentleman whose fame extends all over our land, and across the waters to other lands; a gentleman whose eloquence is known wherever the English language is spoken. I have the honor of introducing to you the Hon. Horatio Seymour, who will now deliver our annual address."

The Governor was received with much applause by the vast concourse assembled to hear him, and his address (which appears in this report) was listened to with delight and satisfaction by a larger and more appreciative audience than has ever before assembled on a similar occasion.

At the close of the address, the following resolution, offered by the Hon Edward Edwards, was unanimously adopted:

Resolved, That the thanks of this society be and are hereby tendered to Gov. Seymour, for the very able and instructive address delivered by him on this occasion, and that a copy thereof be requested for publication with the transactions of the society.

A recess was then taken until 2 P. M., Friday, for the election of officers and reading the reports of the committees and awarding the premiums.

The fourth and last day was given to the exhibition, the interest therein not abating until late in the afternooon.

The society was again called to order at 2 P. M., when the committee previously named, to nominate officers, reported the following:

For President, DeWitt C. Hoyt, of Greenfield; 1st Vice-President, Joseph B. Enos, Waterford; 2d Vice-President, Wm. W. Leland, Saratoga Springs; Corresponding Secretary, Jas. Thompson, Milton; Recording Secretary, J. A. Corey, Saratoga Springs; Treasurer, Milo J. Jennings, Saratoga Springs; with an Executive Committee of two in each town.

The report was adopted, and the officers were duly elected accordingly.

The reports of the judges or viewing committees, as approved by the board of managers, were then read and awarded accordingly, and in the aggregate as follows:

On agriculture proper	$17 50
first class horses	87 00
second class horses	73 00
first class cattle	138 00
second class cattle	67 50
Spanish merino sheep	50 00
long wool sheep	62 00
grade coarse wool sheep	12 00
grade merino sheep	32 00
swine	26 00
poultry	15 00
mechanical productions	75 50
agricultural implements	17 50
butter and cheese*	24 00

*The highest premium ($10) was awarded to the Galway Cheese Factory, for the best five factory cheeses exhibited at the fair. In recommending this premium, the committee say: "The cheeses of the Galway factory were all made in one day, and those of the other factories on different days. Uniformity is, of course, easier attained by making the whole on one day, but your committee are of the opinion that if the cheeses were made on five consecutive days, a more perfect judgment on the merits of the products of the different factories could be given, and would therefore recommend that a rule to that effect be adopted for future exhibitions."

On fruit	$17 50
garden vegetables	27 50
household productions	49 25
painting, drawing, embroidery and needlework	61 00
flowers	59 00
canned fruit and vegetables	14 25
trial of speed of trotting horses	200 00
miscellaneous articles	22 00
	$1,147 50

Besides the above money premiums, fifty-six volumes of the Transactions of the New York State Agricultural Society, and twelve diplomas were awarded.

The executive committee was in session daily during the exhibition, and kept a watchful eye on the whole proceedings. Every town was represented in the board. The superintendents, gate keepers, and special policemen wore sworn in as police, the better to make arrests in cases of emergency, and by these precautionary measures the most perfect order and decorum prevailed during the entire exhibition.

The bills for services of the superintendents, clerks, gate keepers, policemen and laborers were certified and paid at the close of the fair, and all others were referred to the standing auditing committee.

Thus closed one of the best and most successful exhibitions which this society has ever held. The weather was not favorable; the rains on Wednesday morning and Thursday, no doubt prevented many from exhibiting and attending, whose presence and co-operation would have contributed to swell the exhibition and increase the interest in these annual festivals. Still this fair was a SUCCESS, of which this society may well be proud. It will tell with good effect upon our future prosperity, and verifies the oft-repeated prediction, that the farmers and friends of agriculture in this county *can*, if they *will*, make as good a show in the various departments of these annual exhibitions as any other local agricultural organization in the State.

The next meeting of the board of managers was held on the 14th day of December, when the unsettled bills against the society were audited and paid, and the affairs of the society for the past year were closed.

AGRICULTURAL DISCUSSIONS DURING THE FAIR.

This new and interesting feature of the fair added much to the interest of the occasion, and promises to be an essential department

or branch of these annual exhibitions. They were largely attended by the farmers from the neighboring towns, and the room was well filled and the discussions well sustained during the evenings set apart for that purpose.

The first meeting for the discussion of agricultural topics, under the auspices of the Saratoga County Agricultural Society, was held at the Union Hotel Opera House, on Wednesday evening. The president, F. D. Curtis, Esq., called the meeting to order, and announced the question for the evening to be "The necessity of changing the agriculture of the county from a cereal to a dairy basis."

Col. W. T. Odell, of Milton, had been announced to open the discussion by an essay, but he sent a letter saying that he was sick, and not able to attend.

The president then opened the question and read some statistics from the United States census of 1860, and the State census of 1865, showing that the main cereal exported from Saratoga county was oats, and that the production of this cereal had decreased very much between 1860 and 1865. He also gave the number of acres of improved and unimproved lands in the county, according to the last census, as follows: improved, 324,769½ acres; unimproved, 160,762¼ acres. Of these improved lands 192,233¼ acres was in grass, viz: 119,560¼ in pasture, and 73,673 in meadow; and the balance, 131,536¼ acres, was cultivated for cereals, root crops, &c. The decrease in the exportation of oats since 1860, was over 400,000 bushels. Within the last three years, five cheese factories have been established, with an average production during the last year of one thousand cheeses, of fifty pounds each. According to his observation in this and other counties, the tendency of cheese factories was to improve the quality and productiveness of farms in their vicinity.

Nicholas Shall, of Greenfield, was decidedly in favor of the dairy system of farming. In Herkimer county, where he formerly resided, the change had been made, and it had improved the county very much. They used to raise oats, and their farms ran out. On one farm with which he was acquainted, under the old system, they were only able to keep ten cows. In the course of a few years, after changing to a dairy farm, they kept fifty-five cows and five horses. The income from the cheese was larger than from grain, and the soil was improved. When the change was made, cheese sold for only six cents per pound. In seven years the sales of farm products increased

from less than $500 per annum to $2,500 per annum. Considerable rye is raised in this county and sold, the straw going to the paper maker. Under the dairy basis, the grain would be fed to the cows and returned to the land in manure.

James Thompson, of Milton, had been appointed to take part in this discussion. He was not prepared to advise a general change. Would leave each farmer to investigate and decide for himself. The subject was fully discussed at Watertown, when the State Fair was held there. It was then shown that Onondaga county kept more cows in proportion to the number of acres under cultivation than any other county in the State.

J. P. Conkling, of Edinburgh, being called upon, said he was not a practical farmer, and it was hardly proper, perhaps, for him to advise the farmers, but he had thought much on the subject. This county has a great variety of soils, and what might be proper and profitable in one location, would not answer in another. He thought the northern portion of the county one of the best for dairy purposes to be found. The valley of the Sacandaga is natural meadow, and the mountains produced very sweet and rich grasses. There is plenty of good grain land in the southern part of the county, but it has been run out; fairly starved. Farmers had sold hay, grain and straw off the farms, and neglected to buy manure. Farmers are saving in everything except manure. More manure is wasted than would suffice to strengthen and improve the land. They could raise grain enough if they would only return a reasonable amount of manure to the soil. Farmers who were conscientious in paying other debts, neglected the debt they owed their land. Mr. C. gave an interesting account of one year's experience in farming in Hadley. He sold all the produce in the fall, except sufficient to keep a single cow, and in the spring bought lime and manure that made his land much better than before. He thought that farmers in the south part of the county could not compete in the dairy business, with those in the northern portion. Their lands were too high, and not so natural to grass.

Dr. C. Boughton, of Waterford, had very little experience upon the subject under discussion. Has a farm of 400 acres in the south part of the county, and cultivates 300 of it. He shelters all his stock in winter, with great care. Considers oats exhausting to the soil. One acre of corn stalks, cut up and crushed, is equal to two acres of grass for feeding stock. His system of farming is to fallow

one field every year, which course brought every field into fallow as often as once in five years. He saved all his manure. Has never seen an instance of a single system being pursued for a number of years without weakening the land. A mixed system is the best.

The president, in reply to a remark of Dr. Boughton about the market for cheese, said that the demand grew up according to the supply. We were only supplying England at present, but a demand is beginning for American cheese from the continent of Europe. The average produce of a cow on a dairy farm is seventy dollars per annum.

Maj. W. W. Leland, vice-president, gave a brief account of the farm of his brother, Warren Leland, in Westchester county. It was worth $250 per acre, and produced milk that sold for $6,000 per annum in the city of New York.

Mr. Silas P. Briggs, of Saratoga Springs, spoke at some length, opposing the arguments of the president and others, favoring a general change to a dairy basis. He said a large portion of the western part of the county was adapted to grazing, and there he believed it more profitable to keep cows, but in the eastern towns which were accommodated by railroads and canals, several of which were of excellent soil, easily tilled, and some of lighter soil, the great staple had of late years come to be, and should be potatoes. He had a farm near the village, mostly of a light sandy soil, and on that he made his chief crop, potatoes. He proposed to keep cows a little more than hitherto. He did not believe potatoes more exhausting to the soil than the average of other crops. He took no stock in the statement, that the farms of Saratoga county were gradually depreciating, and the farmers going to ruin. To say nothing about the currency, or prices, there never was a time when the products afforded the tillers of the soil so many of the comforts and luxuries of life, and added so much to their wealth as the present. Mr. Briggs spoke further of his own culture, and that of the county, and among other things said, farmers read more latterly, and generally understood what is more profitable, in the long run, and are not slow to adopt the best system.

Mr. Crouch, of Galway, had been a farmer for twenty years. The result of his experience was that whatever a farmer does, he should do well. He thought dairying the best system of farming, but it is desirable to raise grain on the farm sufficient for the use of the farm. One load of manure from grain is worth five from straw.

Mr. J. P. Conkling suggested the propriety of the society offering premiums for statistics of the production and cost of carrying on farms under different systems, viz.: Grain, dairying, and sheep farming. After some conversation, he embodied his suggestion in the form of instructions which was put and carried. The meeting then adjourned.

THURSDAY EVENING.

The announcement that Hon. Horatio Seymour and other distinguished gentlemen would attend and take part in the discussion this evening, attracted a large audience, the Opera House being well filled, many ladies being present.

The president announced the questions for the evening to be:

"The best method of renovating the light and worn out soils of this county," and,

"Is the culture of potatoes exhaustive of the soil and hence detrimental?"

Mr. C. S. Lester, who was expected to open the discussion, sent a letter pleading illness as his excuse for absence. The president then opened the discussion by explaining that it was not intended to say that all the soils of the county were worn out, but only that there were some worn out and some light soils that required renovating. He spoke also of the amount of potatoes raised in the county. In 1865, according to the census, 10,685¼ acres were planted in potatoes, and 897,475 bushels harvested, the towns of Saratoga and Clifton Park raising the largest amounts, viz., 123,736 bushels in Saratoga, and 112,987 in Clifton Park, while Waterford only raised 12,313 bushels, and Hadley 16,433 bushels. The question of deterioration of soils was a very important one. Mr. James Thompson, of Milton, had told him that in sowing clover in a field where corn and potatoes had been planted side by side, the show of clover marked the line distinctly, it growing much better after the corn than potatoes. In regard to renovating the soil he told how an Englishman, who purchased a farm in his vicinity, worked. One field beside the road had not grown crops to the value of ten dollars in ten years; it was low and wet. After a dry time he took out a quantity of muck from the lowest portion, and after drying, burnt it, spreading on the ashes; the next year did the same. Both seasons he planted corn and had good crops. The soil was a heavy clay loam. It was now seeded down and looked well. He also cited the case of J. M. Marvin's farm, near this village. The soil was very light and sandy, so that

his first crop of oats did not return the value of the seed sown. He spread one hundred loads of clay to the acre, and had renovated the land completely. In his opinion the salvation of our county depends upon changing from a cereal to a dairy basis.

Dr. M. L. Finch, of Clifton Park, read an essay upon the potato culture and its effects upon the soil. He showed that the potato drew largely of carbonates and potash from the soil. Clay restores these constituents. Hoping to be able hereafter to give Dr. Finch's essay in full we did not take full notes. It was full of facts and figures drawn from Dr. Emmons and others.

William Shepherd, of Clifton park, spoke of the potato as exhaustive of the soil, but he would not give up the cultivation. Oats are more exhaustive than potatoes. After a crop of potatoes he would seed with timothy or rye, and in the spring sow clover. This course renovates his land and makes it better all the time. He had followed it for years, and his farm was worth much more than when he commenced. Every man should examine the soil of his own farm, as there were scarcely two fields alike. Agreed with Gov. Seymour, about the benefit of the dairy business in some cases, but was satisfied to grow potatoes in Clifton Park. Did not advise plowing deep in sandy soils.

Judge S. Cheever, of Waterford, spoke on the subject of renovating exhausted soils. He would first inquire the position of a man's barn yard. It should be sheltered on at least three sides, and made dishing. The basin should be filled with muck to absorb the liquids. Don't carry away a crop without returning an equivalent. Clover is the great restorer of soils. He was opposed to burning weeds or potato vines, but would have those things well rotted in a compost heap, and spread on the land for manure. If a man can only get clover to take, he can restore his farm, and raise potatoes or even oats. Must return to clover after two crops of potatoes at least. He preferred to seed with clover after rye.

J. M. Gailor, of Wilton, endorsed Judge Cheever's plans of renovation. He had found summer fallowing useful on light soils. He had allowed fields to lie uncropped two seasons, summer fallowing frequently. Sometimes allowed it to lay idle for three years in horse sorrel, then manure freely. Being near this village he had purchased large quantities and spread on his land.

Hon. T. B. Carroll, of Rensselaer, came forward on call of the president, and spoke of remarks made two years ago on the question

of renovating worn out lands, advising farmers to keep out of politics. He meant his own case, but others had taken it to themselves. Had purchased worn out lands in this town and Greenfield. Put 1,500 loads of manure on one farm, in this town. Was satisfied with the result; can raise plenty of potatoes or any other crop. There is plenty of muck all about us, and he thought it much better to use it for manure than try to make fuel of it, as some speculators are doing. Can be easily manufactured into first rate manure. Advised people to buy cheap lands in this county, and renovate them as he had done, rather than go west. He said as soon as he could close up his affairs in Rensselaer county he should take up his residence in this town. He ended by eulogizing Gov. Seymour as a farmer.

Hon. Horatio Seymour was then introduced and received with cheers. He said he did not come to speak but to hear. He did not claim to be a practical farmer when at home, but when fifty miles away, his neighbors allowed him to do so. Owning lands in this county he felt an interest here. From what he had seen, he did not think the farmers of the country were doing justice to themselves or their lands. Oneida raises large quantities of potatoes, the same as this county, as they could be easily marketed by the canal.

In order to compete with the cheap lands of the west, we must raise coarser products. He agreed with Mr. Carroll in regard to the injury of politics to farmers. He spoke of the advantages of dairy farming; a man can cultivate more acres on a dairy farm than any other. The cheap lands of the west are not as favorable for dairy purposes and pasturage as the lands in this State. He favored soiling with corn to feed cattle. Corn sowed thick would yield more food to the acre than anything else. It was better to leave out in stacks than hay or straw, and was well liked by the cattle.

Gov. S. told how the English tried to keep our cheese out of the markets by changing the form of their products. Through the direction of a dealer our factories made an imitation that reached the market before the original did. In Oneida county he had seen forty or fifty acres of potatoes in a single field. The three happiest years of his life had been spent on the farm. In Europe all branches of farming are carried on by the same man, but in this country we were able to devote large farms, almost whole States, to a single branch, thereby insuring improved culture. He thought New York the best and most pleasant State to live in, and agriculture the sound basis of society in any country. He had come here in pursuance of an agree-

ment made some time since, and had been much gratified at the reception given him by men of all shades of political opinion. It was an agreeable respite from the asperities of an excited canvass to be thus received.

Address of Hon. Horatio Seymour at the Saratoga County Fair, 1868.

Having lived upon a farm during the past three years, I have given agriculture a great deal of thought. It is a broad subject, and one which touches every interest of society. More than any other, it bears upon the wealth, the social condition, and the legislation of the country. There are many of its phases which, under other circumstances I would gladly discuss, but they are so related to the political questions of the day that it would be unfit to speak of them here. It is fortunate that in the midst of our partisan conflicts, we are now and then called together as citizens to discuss, without regard to political differences, great questions of common interest. They are breathing spells in our combats, when we recall the fact that we are fellow countrymen, alike concerned in anything which advances the welfare of our land.

Each year, at this season, the question is anxiously put, are our crops good, and will there be a foreign demand? The merchant and mechanic in a good degree, regulate their plans by the answer which is given. There is a struggle ever going on between American and European agriculture. The latter has the advantage of cheap labor, low taxes and the possession of the ground upon which the products are to be sold. On the other hand, their lands are costly and are worn by long tillage. In our favor we have cheap and fertile land, and a wonderful skill in making and using agricultural machinery. Our drawbacks are heavy taxes, high rates of interest, long and costly transportation. Leaving out of view the controverted points as to the best mode of cutting down taxes and interest, we have reason to hope that much may be done in behalf of American agriculture by improved machinery and by cheapening transportation. One of the best results from gatherings like this is that they bring to the notice of the public the inventions of our mechanics. These have become the chief features of our fairs. It is in farm machinery that we go beyond all other people in any period of the world's history. I do not think we are any more wise about fertilizers or tillage than the ancients were. They made as good, and in some cases

better crops than we do. It is hard for us to understand how they were able to feed the dense population of Rome and other great cities with their inferior tools, without railroads or steamboats, or even ships to compare with those of this day. The best reliance of the American farmer is the skill of the American mechanic. This alone has saved us from national ruin and bankruptcy. This machinery, in a large degree, took the place of human toil in the late civil war and fed our armies, and kept alive the springs of industry and commerce. To the same skill and inventive power must we look for help in our struggle for a foot-hold in European markets for American products.

The greatest hindrance in our efforts to get into foreign markets is the cost of transportation and our system of buying and selling. These are most hurtful in States more remote from the seaboard, but they are severely felt in the Atlantic States. We frequently complain of the high cost of bread and other articles of food, and we feel that the farmers of the west are getting rich at our expense. If we analyze the price of a barrel of flour, we find in many cases that the farmer who bought the land, and tilled it, and fitted the wheat for market, gets only about one half of the sum we pay for the flour made from his grain. Between the producer and the consumer there is a long list of charges which harm both classes. Now the miller, the carrier, and the merchant, must all have their just rewards for their labor and enterprise. But if we look closely into all the transfers, commissions, profits, taxes on sales and the interest accounts, we shall see that we have reason to hope that some better method of getting the products of the farmers into the hands of the consumer, will be devised by the skill of our people. To-day the best commercial paper made in this or perhaps any other country pays the highest interest. Those who buy wheat of the farmers of the west pay an interest ranging from ten to twelve per cent. The wheat goes from the hand of one class of buyers into that of another. Each buyer is paying heavy interest accounts which overload more or less in time. Each one pays taxes on his transactions; each one gets his profits or commission. All these charges come out of the producer and consumer. Can any mode be devised which will wipe out or lessen the heavy charges made upon farm products between the producer and consumer. This is to-day the greatest need of American agriculture. I do not suppose the middle men can be dispensed with entirely, but there are too many of them.

The great change which has been made in the mode of selling the dairies of this State leads us to hope that some system may be devised to relieve other farm products. Formerly, cheese made in this State was sold to the near-by merchant, and by him sold to others, so that when it reached the English market, if it ever reached there, it was loaded down with numerous commissions, interest accounts, taxes and profits. Under the present system of selling the cheese made in a neighborhood through the common factory agent to the New York or London merchant, all intermediate charges are cut out and the gain is divided between the maker and the consumer. In my own neighborhood, I frequently see a London buyer dealing directly with the cheese makers. I believe this is the only farm product of our country which goes into foreign markets free from this loss and cost of numerous transfers. Can no system be devised by which other farm products can be saved from the numerous costs of multiplied commissions and profits? I see the difficulties in the way, but I trust some change can be made in our present system which is so hurtful to producers and consumers.

Beyond the need of improved machinery and the necessity of relief from the heavy interest and burthensome taxation, there must be something more to give prosperity to agriculture. In some respects the tastes and habits of our people must be changed. No pursuit can, in the long run, do well unless it is held in high honor by the public and is cherished with pride and affection by those engaged in it. There is certainly enough of laudation of the farmer's pursuits, but we cannot shut our eyes to the fact that there is a growing dislike for country life in our land, and an increasing desire to crowd into towns and cities. The comparative increase of city and town population is much greater than that of the rural districts. This does not grow out of any sound business considerations. We find that men who have gained moderate fortunes by their skill and industry as farmers are prone to sell their property and go into neighboring villages. In this State the people seem to have their backs turned to the country and their faces set towards town life. The end of social ambition is to live in the largest cities, and of late this has been carried so far that the great towns of Europe are swarming with Americans. Many millions of gold are spent each year by absentees. The sum thus spent abroad makes a large item in our increasing indebtedness to Europe.

To what is this dislike of country life due? It is not a natural one. It is not held elsewhere to be a social advancement to lose the position of an owner of land to become a dweller in town. In Great Britain it is the reverse of this. Men seek to gain fortunes that they may become the owners of country homes. It adds to their dignity to be landed proprietors. The tastes for rural life are there cultivated and diffused. This has given to its farmers great social and political consideration. They have there a weight in shaping the policy of government which they do not have elsewhere. For some reason the love of country life seems to be fading out with us. This is attended with great evils. When a man who has gained a competency by his skill and industry gives up his farm and moves into a town, he not only goes where his social position is lowered, his knowledge and experience made useless, but he throws a gloom over the neighborhood he leaves, and by his example unsettles the purposes and modes of life of those around him. Their influences are hurtful in many ways. They have deprived us of a due proportion of agricultural labor. They have lessened the productions of the soil and have cut off our export. They have tended to the demoralization of young men, and have led them to look to speculating adventures and gambling enterprises, and not to steady industry and prudent saving for the means of support.

What are the causes of this perverted taste and the hurtful practice? Do they spring from the monotony of country life, or from our own want of the right kind of education? It is certain that in the earlier periods of our history those who had gained fortune or fame were in the habit of making their homes in the country. This was true of all the great men of the revolutionary period and of all the presidents. In the letters of John Adams, to his wife, written while he was secretary of State, and after he became president, you will find these passages:

"I begin now to think all time lost that is not employed in farming. Enchanting employment! how my imagination roves over my rocky mountains and through my brushy meadows."

"A journal or diurnal of farming would be very refreshing and entertaining. O! the tedious solitude that awaits me for three or four months amidst the noise, smoke, wealth, luxury, eloquence, learning, wit and wisdom of this proud city and our venerable Congress! To me, one week of domestic and rural amusement would be worth it all."

Speaking of the fears which were entertained that Washington would lose his health when he left office, he says:

"I should be afraid too, if I had no confidence in his farm and his horse. He must be a fool, I think, who dies of chagrin, when he has a fine farm and a Narraganset mare that paces, trots and canters. But I don't know but all men are just such fools."

The author of those passages had been our minister in Europe; he was familiar with the splendor and luxuries of its courts. These expressions of his love of farming and country life were uttered while he was in the enjoyment of the highest honors his country could give. The letters and biographies of Washington, Jefferson, Madison and most of our great men, show the same love of rural pursuits. They sought to close their lives in those scenes and in those pursuits from which most men at this time try to escape. They reversed the action of our day, and left cities for the most complete retirement. The question comes up, what did these men find in the country that we do not find? If there are enjoyments on our farms greater than those which towns can give, it is worth our while to trace them out. If the country will not only give healthful and profitable employment in the vigor of life, but will also afford pleasures which are lasting through age with its infirmities, we ought to know what they are. For they add to the value of our real estate. They will save us from the cost and necessity of changing our homes, and sinking our usefulness in new scenes, where the custom and skill we have gained are of no value. As these lose their value, we lose our social positions. Is there not a want of some tastes, or of some intelligence on our part which we ought to have and which we can easily gain? I return to the question which I propose to discuss. What did George Washington, John Adams, and Thomas Jefferson, find in country and farm life that made them long for it while in office, and led them to seek it when they were free to follow their inclinations?

The great truth is that all men do not live in the same world; outwardly they do, but when we look into their tastes, their intelligence, and their modes of thought, we find that the world around them bears to each a different aspect. We see that men live in different kinds of houses. Some are hovels, some are comfortable houses, others are magnificent buildings, filled with paintings and with statuary, and with all things that are calculated to please the taste. Yet these houses do not differ as much in their aspect as does

the material world around us to the eyes of the educated or the ignorant. To those who have been trained to see its beauties, to examine its wonders, to trace out its laws of animal and vegetable life, it gives enjoyments unknown to those whose minds are closed, and whose eyes are sealed to all its varied and wondrous creations. It is deemed a wise thing for men to toil for wealth that they may gain the means to build houses, and to surround themselves with all art can give to add to the comforts and pleasures of life. Is it not then an unwise thing to neglect the cultivation of our minds and tastes, and higher enjoyments than wealth can bestow? The man who allows himself to live in ignorance, looks up into the heavens and sees a waste studded indeed with glittering stars at night, or lighted up by the midday sun. He notes the changes of the weather, and sees with but little concern objects that have lost their novelty. The man of education, looking in the same direction, sees numberless worlds swinging through the vast realms of space; he finds in the contemplation of the laws of the heavenly bodies, their huge dimensions, their enormous distances, subject of thought which fills his mind with awe, enlarges his faculties, and lifts him up in the scale of existence. It cannot then be said that the educated and the ignorant man look upon the same heavens. The ground beneath our feet is to one an unmeaning mass of earth and rock; there is no significance to his mind in its broken surface, its mountain ranges or its deep valleys, except as they may help or hinder him in the dull routine of life, while he plods vacantly on over their surfaces. But this same earth is to an educated man a great record of the past, wherein he finds traced out the evidence of vast changes and wonderful existences. The hills and mountains are not to him unmeaning elevations, for he knows the laws that heaved them up, he has learned the order in which their rocky bases were formed, he knows the stratifications beneath his feet, he is familiar with the fossil remains of animal existence, more strange and hideous than were ever dreamed of by the most diseased imagination; he feels that he stands at all times upon a marvellous record which quickens his imagination, and gives him endless food for thought. The beauties of nature, its flowers, its fresh and green foliage, its varied forms are dimly seen by all, but it is only those who have cultivated their tastes, and those who have studied the laws of vegetable life, who see and feel the beauty of their structure, and the endless variety of their forms, their modes of growth or the methods by which they perpetuate their

existence. The animal life that swarms in the air, moves upon the surface of the ground, or lives in streams and floods is not less wonderful, and offers to us subjects of pleasant and healthful studies. I might follow out this comparison between the condition of the educated and the ignorant, and show how different are the worlds in which they live. The splendors and the wonders around us can easily be seen by all, and he who has unlocked the door and has entered this marvelous museum of nature, need not have wealth, nor unusual ability, to live in a home full furnished with all that is calculated to please our taste, to give full exercise to our minds, to improve our hearts, and to fit us for lives of virtue and usefulness here, and of happiness hereafter. It not unfrequently happens that the man of fortune who has given himself up to the love of gain, or who may live in a magnificent house, well filled with costly articles, after all this, may still be the dweller of a dreary unfurnished world. His poorer but more intelligent neighbor, may see from his humble porch greater beauties, and object of deeper interest than wealth can give.

We can see, then, why country life is dreary to one and full of pleasure to another. We can see why we have not put the farmer upon the highest grounds, when we have merely taught him the skill of a husbandman or the art of making money. These do not meet the demands of nature when our vital powers begin to give way. They do not meet the call for mental interest when time shall have laid its hand upon and disabled us for physical toil. To lift up agriculture to its best and highest estate, those who follow it must have a measure of taste and of education, which will make them happy upon their farms through all periods of their lives. If these are wanting, men will abandon the country for the excitements of towns. We see why the great men to whom I alluded sought homes amid the remote scenes of nature. We also see whence springs this hurtful and unhealthy passion for city life. But it may be said that all men cannot become learned in the mysteries of nature. It would indeed be a mockery to tell the man who begins life in the humblest position, without the aid of early education, and who is toiling on to wring out a support by his farm labor for himself and family, that he must become either an astronomer, or a geologist, or a botanist, to be happy in his home. Nor are these things necessary. The Almighty has been too kind to demand of any one for their happiness that which is beyond their reach. But he does require them, if they

would enjoy the beauties of His world, that they should open their eyes and look. He does demand, if they would have habits of thought and mental pleasures, that they should cultivate their powers of observation and learn the lesson which He tries to teach them in every bush or flower, in every stone or stream, and in all animated nature that surrounds them. It needs no more knowledge than every man can gain who will look and think, to make rural life full of enjoyments. He who will not do this cheats and wrongs himself. In the order of nature a love of the country is a natural enjoyment in our declining years. All men should bear in mind that their tastes outlive their intellectual powers. They should therefore cultivate those tastes which can be easily gratified, that are not inconsistent with the weakness of age, which make no heavy demands upon our powers, and which we hold by no uncertain tenure. Objects of art or wealth are frequently stripped from men when their powers begin to fail, but he who loves God's works is happy in the scenes of nature, has pleasures more certain and lasting than fortune can give. It is a good investment to cultivate the tastes, I care not how humble they may be. The man is untrue to himself, amidst the labor of the farm, when following the plow or busy at any other work, who does not exercise and strengthen his mind by observing all there is about him. He lives in the midst of God's great museum of wonders, and he cannot say he has had no chance to learn, he cannot say he was never taught, for all the world about him is teaching, if he will but learn truths, that will make him content with his lot, that will strengthen his mind, purify his taste and lift him up in his whole nature. I have seen and know much of men of all conditions. I have listened to the histories and the prayer of the criminal in his cell. I have enjoyed the intercourse of men marked for their virtues, their abilities in high social and official positions. Beyond most men I have had a chance to study human nature in all its phases, and I do not hesitate to say as one of the results of lifelong observation, that virtue, health and happiness are best promoted by cultivating a love of nature. Its teachings, next to the teachings of religion, do most to make men wise and contented here and hereafter. May we not hope that the taste for rural life which once prevailed in our land may be restored by a better public opinion and by a judicious system of education which shall aim at gaining that knowledge which is needed by our farming population. The young men of our country are crowding into the cities; they are leaving

safe, healthful and useful pursuits for the speculative chances of town life. In too many instances they make miserable failures, and shipwreck health and character.

The practice which prevails among our successful farmers of selling their farms and moving into cities and villages does a double mischief. It strips the rural districts of their accumulated capital, and deprives them of the wisdom and skill gained by long experience. The double drain of the young and active, as well as the old and wealthy, is hurtful to the moral tone as well as to the material power of the agricultural interest. It weakens the influence of the great industrial pursuit of our land, the one upon which the prosperity of all others is based. It is our duty, then, not only to urge measures which will make farming profitable, but also those which will make country life attractive. It must be lifted up and made an intellectual profession. It must not be shunned, but it must be sought as a mode of life which gives not only just reward to labor, but honor and influence in our social and political system.

We find a great diversity of taste among civilized nations. They are the results of education and public opinion. Our tastes and habits should be made to conform to the condition of our country. Our chief wealth is in our lands. Our growth in greatness depends upon our bringing into use our vast uncultivated domain. Those tastes and habits which lead our people to turn their backs upon country life are hurtful to our prosperity. The system of education which fails to give intellectual interest and mental activity to rural pursuits, is not well directed, and does not meet the wants and conditions of the American people. We must have as a basis of political stability and business prosperity, not only agricultural skill and mechanical invention, but also the diffusion of that kind of knowledge which will make our farmers and their families honor their pursuit, and love the rural scenes amidst which they are carried on.

We have thus given a pretty full abstract of the proceedings of this society, and of its board of managers during the year now past, embracing, also, the interesting agricultural discussions during the annual fair, and the admirable address of Governor Seymour. The unusual length of this report seems to forbid an elaborate statement of the condition of agriculture in this county. Indeed, our former reports embody all that could *now* be said on this subject, save the remark, that the past season has been highly favorable to the husbandman, whose labors have been rewarded by a crowning harvest.

Although the spring time for putting in the crops was nearly a month later than usual, the yield of all the cereals was equal to the average for several years past, and, with the exception of oats, was better than that of 1867. The cold and wet weather of April and May, which held the frost in the fields during the month of April and a part of May, was succeeded by a severe drouth, extending through June and a part of July, by which the late sown crops, and particularly oats, were seriously injured; so much so, that the yield of the latter, in many places, was less than one-half the usual product of this staple.

It is quite evident that the seasons for "seed time and harvest" have changed as the country has been cleared of its forests, the land, opened to the sun, and evaporation and drainage have exhausted the water which gathers and remains on the surface while the country is new and uncleared. Our winters seem to be longer and more severe. Spring is later, and the changes from wet to dry and hot to cold are much more frequent now than half a century ago. The old rule for corn-planting, on the 10th day of May, is superseded by an extension of the time three or four weeks; and last season, as good crops as were grown were planted as late as the 1st day of June.

The order of nature, as displayed through the changing of the seasons, and the more frequently recurring changes of the weather at all seasons of the year, is a matter of vast importance, to be studied and carefully observed by the cultivators of the soil. The science of meteorology is as useful to the agriculturist as that of geology. While the last teaches the character and quality of the soils, and their peculiar adaptation to the different kinds of crops, the first is the guide in determining the best and most appropriate time for committing the seeds to the earth.

Agricultural science is working judicious reforms and accomplishing beneficial results among the farmers of this county. By a careful system of cultivation, those white and barren sand hills which once met the eye of the traveler, and disfigured many of our up-land farms have disappeared and green verdure has taken their places. A liberal system of drainage has brought up and redeemed much of the low, marshy lands formerly covered with standing water. Our farmers are generally free from debt, and own the fee of the farms they cultivate. Instead of "cropping" from year to year, and selling all their surplus, they are bestowing more care upon the soil, and liberally applying those fertilizers calculated to renovate and prevent deterioration.

Increased attention is being paid to dairying, especially in the vicinity of the villages, where the demand for milk and butter is always equal to the supply. Cheese factories, too, are springing up in several parts of the county, where the milk of the surrounding farms is collected and converted into cheese, and thus, while our farmers are driving a profitable business in dairying, they are at the same time stocking their farms with improved herds of cattle, a certain and sure method of keeping up their farms in the highest state of cultivation. Dairying has become a prominent feature in our agricultural economy, and the question is open for discussion whether a change from a cereal to a dairy basis would not be beneficial to our farming community.

If it be true that the lands in the old and long settled districts are deteriorating, and the soil from long cultivation is becoming sterile and unproductive under the present system, it suggests a pretty serious question whether some change is not necessary to restore and preserve the lands for all agricultural purposes.

A considerable portion of this county is naturally adapted to grass and grazing. This is so of the bottom lands in the valley of the Mohawk and Hudson rivers, and the Kayaderosseras creek, which meanders through the center of the county. The mountainous region is better adapted to grass and dairying than anything else. The advantages for dairying in this region over many other portions of the county are these: the land is cheaper, with abundance of pure and wholesome water; the weather is several degrees cooler than in less elevated sections; the grasses grow quicker, and are sweeter, and cattle grow and thrive much better on these table lands than on any of the sandy or clay farms in the county.

The experiment of dairying on one of these mountain ranges was succesfully tried by Oscar Granger, a theoretical as well as practical farmer of Saratoga Springs, last summer. He owns some six or seven hundred acres of land on the Kayaderosseras mountain, in the towns of Edinburgh and Greenfield, three or four hundred of which are cleared and a portion put down in meadows, which never yield less than two tons of hay to the acre. Upon this he keeps between forty and fifty milch cows, where he has established his dairy, adopting the Orange county system, and in the butter making season, produces the very best quality of butter at the rate of eighty to one hundred pounds per day. A brief description of this establishment, and his process of butter making seems to be an appropriate appendix to this report.

It is situated some twelve or thirteen miles from Saratoga Springs, on an elevated plateau, 1,500 feet above the village. It is rightfully named "Mount Pleasant." It is as fine grass-growing and grazing land as any in this county. The seasons are too short and too cold for the cereals indigenous to our climate, and the lands are valuable for the wood and timber, and in some localities, for the minerals which are known to exist in this mountain. When stripped of the wood and timber, they are susceptible of conversion into meadows and pasturage, and to these uses has the proprietor of the Mount Pleasant dairy wisely appropriated his broad acres on the Kayaderosseras mountain. His dairy rooms, four in number, are in a spacious basement of his superintendent's dwelling. In one of these rooms is a vat of cold water continually running in and passing off. Another of these rooms is for churning by horsepower. Another is for washing and cleansing the utensils, and the other is a store room, all well drained by a cemented ground bottom, as sweet and as pure as cold water can make them, and where the thermometer never ranges, in the hottest of weather, above sixty degrees.

The milk of each morning and evening is strained in a large can, thus making the butter of each churning all of the same quality and color. From this can the milk is drawn off into coolers, holding sixteen or eighteen quarts and placed in the vat, where it remains until all the cream rises, when it is taken off, put into the churns (two large vessels holding a barrel and a-half each,) and by means of horse-power is worked into butter in less than an hour. After being thoroughly worked by a well contrived butter-worker, the butter is packed in white oak tubs of the latest fashion, and deposited in the butter or store room, where it may be kept all summer in the same sweet condition as the day it was made. The butter from this dairy meets with a ready sale in our market at better prices than almost any other made in this county. Indeed, all made at the Mount Pleasant dairy last season was monopolized by Congress Hall, as also the cream from the same dairy while butter making was suspended to supply the demand for cream, the latter item entering largely into the daily consumption at our summer hotels.

Mr. Granger's investment, all told, in this dairying establishment is probably $15,000; from which, in the first year's experiment, he realized a fair profit, with a reasonable prospect of doing better hereafter, with such additions and improvements as his ingenuity will naturally suggest, and his characteristic enterprise will be very likely to accomplish.

Agricultural Statistics.

The law, requiring the collection of agricultural statistics through the medium of our county society, has hitherto failed to accomplish its object. In our best agricultural towns it is entirely disregarded; and returns of these collections for the year 1867 have been received at this late day from only sixty-three school districts out of 220. There seems to be a repugnance on the part of many farmers to the questions proposed; and a still greater repugnance to the labor involved in taking the statistics. Perhaps the inadequate compensation provided by the law, especially with those who estimate everything by dollars and cents, and the delay in receiving the books until a year or more after they are earned, is one reason why the collections are not more promptly made. Without attempting to assign the real causes which have prevented this society from taking and returning the agricultural statistics as the law requires, it is proper that this, our annual report, should show what progress we have made, and how far we have come short of a full compliance of the law in this regard.

The reports from the sixty school districts are herewith transmitted for what they are worth, and are presented as an evidence of the increasing attention to agriculture in the mountainous regions of this county, and a willingness on the part of the farmers of those sequestered towns to contribute their share in promoting the agricultural prosperity of the whole county.

It is worthy of consideration whether the time has not arrived for making, under the auspices of the State Agricultural Society, a thorough geological survey of this county, in connection with its agricultural and political history It is believed that no other county in the State presents a broader field geologically, agriculturally and historically than Saratoga. Other counties of less importance than this have had the benefit of these scientific researches. Our mountainous regions are rich in natural products, which only want the development of enterprise and capital to bring them to light and make them prominent articles of commerce. The geology of this county is one of its most interesting features, and affords a subject of much speculation and inquiry among all who look below the surface of the earth for those hidden treasures, which contribute largely to enrich the soil and give life and vitality to the whole vegetable kingdom.

The sources and causes of our wonderful medicinal fountains have been the study and puzzle of geological science ever since they were

discovered, without unfolding the mysterious order of nature by which they are produced. The whole valley of the Kayaderosseras abounds in these mineral or medicinal springs.

Later developments in the mountainous regions have attracted public attention to extensive beds of granite, within a mile or two of the village of Saratoga Springs, which is now being quarried on a lot of M. J. Jennings & Co., and forwarded for the new State capitol, in the city of Albany. These beds are believed to be inexhaustible, and the day is not distant when this granite will be used for imperishable building purposes.

Mica, too, has recently been discovered in the town of Edinburgh, and a company has recently been formed, of capitalists, in the town of Saratoga Springs, to open the quarry and prepare the product for market. This mica is found embodied in feldspar, of a superior quality for the manufacture of porcelain, and the proprietors intend to have a large quantity of each in the market in the spring of 1869. This quarry is situate in the valley of the Sacandaga river, about fourteen miles from the Hadley station of the Adirondack company's railroad.

More than half a century ago iron ore was discovered in the town of Hadley, and limited investments were made for its development and manufacture, but the want of sufficient capital and facilities for its market, suspended further operations, and the benefits of the discovery were, for a time, lost to the world.

The county of Saratoga is rich in mineral resources, and with the aid of capital and liberal legislation, may be made one of the most productive sections of the State.

All which is respectfully submitted.

J. A. COREY,
Secretary.

Saratoga Springs, *Dec.* 31, 1868.

Receipts and Disbursements of the Saratoga County Agricultural Society for 1868.

1868. *Receipts.*

State appropriation for 1867	$151 25
Use of track in 1867	100 00
Life memberships	100 00
Single tickets sold at the fair	1,439 57
Carriage tickets "	4 00
Horse and rider "	0 50

Rent of restaurant	$100 00
Shows and exhibitions	176 55
Hay and straw sold	2 00
Entries to trial of speed of horses	77 50
Annual memberships	420 00
State appropriation of 1868	294 94
In treasury at the date of last report	66 08
	$2,932 39

1868. *Disbursements.*

Paid interest on mortgage	$140 54
insurance on buildings	27 00
expenses collecting statistics	25 00
repairing roller	15 83
postages and express charges	6 20
rent of village office for 1867	25 00
express charges on books	0 55
premiums of 1867	6 00
salary of secretary	100 00
" treasurer	50 00
superintendents at fair	136 00
gate keepers	64 00
night watchmen	16 50
police	56 00
clerks	62 50
cartage	52 50
hardware, nails, &c.	66 15
lumber and building	97 62
interest due in 1868	270 00
horse hire	12 00
printing bills	116 80
books and stationery	23 15
postages and express charges	12 87
rent of village office, 1868	25 00
traveling expenses of speaker	25 00
carpenter work, A. Hall	24 54
feed for swine at fair	19 83
miscellaneous items	149 44
carpenters and laborers	80 50
ice for fair	3 00
painting sign	2 00
spreading manure	4 00
care of show grounds, &c., 1868	6 00
hay and straw for fair	62 10
money premiums awarded	1,147 50
Balance in treasury	$1 27
	$2,932 39

SCHENECTADY.

THE ANNUAL REPORT OF THE SCHENECTADY COUNTY AGRICULTURAL ASSOCIATION FOR THE YEAR 1868.

This society was organized in the month of December, 1867, and the officers, elected at its first annual meeting, were as follows: President, Hon. Chas. Stanford; Vice-Presidents, Wm. Van Vranken, Chas. G. Ellis, A. J. Thomson, N. I. Schermerhorn, Livingston Ellwood, Wm. Dougal, Chas. P. Sanders, Thos. L. Walker, H. P. Allen, Matthew Winne; Treasurer, James W. Mairs; Secretary, E. Nott Schermerhorn.

Its first annual fair was held September 15th, 16th and 17th, and its receipts and disbursements for the year are as follows;

Receipts.

Cash received for advertisements in premium lists	$115 00
" for license for shows, &c	103 00
" from sale of single tickets	1,232 29
" from sale of members' tickets	313 00
" from special premiums	20 00
" from sale of hay	4 20
" from sale of hardware	52
" from sale of lumber	594 64
	$2,382 65

Disbursements.

Paid for temporary erections	$1,023 63
for driving park	145 13
expenses of fair and secretary	335 29
premiums and diplomas	615 05
Balance to credit of society	263 55
	$2,382 65

E. NOTT SCHERMERHORN,
Secretary.

SCHENECTADY, *Jan.* 28, 1869.

SCHOHARIE.

To B. P. JOHNSON, Esq., *Secretary State Agricultural Society:*

The seventh annual fair of the Schoharie County Agricultural Society, and the Schoharie Valley Stock Growers Association, came

off according to the programme, on Tuesday, Wednesday and Thursday of last week. The fair this year has proved a success in every respect; the receipts and attendance have exceeded that of previous years, and the interest manifested more general throughout the county. On the second day of the fair 3,000 people were on the grounds, and the attendance on each day was quite large. The display of stock was good, and a great deal of interest was manifested by exhibitors and visitors in this department. The number of articles on exhibition in the hall was not so large as last year, still there were a variety of articles embraced under the headings of domestic manufactures, needlework, flowers, paintings, &c. In fruits, Jacob Vroman made a fine display. There were also some good oil paintings that failed to receive a premium because they were not entered. Rev. Mr. Taylor, made a display of pianos, and furnished music during the continuance of the fair.

There was a fine show of stock made by Mr. D. N. Merikle, of Esperance, which was improperly entered, unintentionally on his part, and did not receive a premium. Herewith we give a list of premiums awarded together with the report of the treasurer.

The parade of the firemen on the afternoon of the last day of the fair, and the fire department ball on that evening, was an interesting feature. The parade on that afternoon attracted a great deal of attention. The firemen, sixty-odd strong, dressed in uniform and reinforced by the Middleburgh firemen, made a very creditable appearance. Preceded by the cornet band, and drawing their fire machine gaily decorated with flags and flowers, and with a youthful fireman mounted on the engine, they were loudly applauded as they passed through the streets.

During the trials of speed the very best order was maintained, and everything passed off in a satisfactory manner.

The plowing match was a new feature, and from the interest manifested in the result, we should say that it will in all probability become a permanent feature in future fairs.

There was to have been a meeting at the Court House on Wednesday evening for the purpose of hearing the opinions of various persons on the subject of agriculture. But before the management secured the Court House it was rented for political purposes, and the meeting did not take place.

The agricultural address delivered by Hon. Stephen L. Mayham, was able and eloquent.

The following is an account of receipts and disbursements for the year ending October 1st, 1868:

Receipts.

Balance of appropriation for 1867		$85 00
Subscriptions, taxes on members, and tickets sold		831 56
For grass sold from grounds		71 00
Rent of refreshment stand		25 00
		$1,012 56

Disbursements.

In payment of bills of previous year	$104 82	
Premiums awarded at fair	484 00	
Printing, services, and incidental expenses	219 70	
Rent of grounds	165 00	
		973 52
Balance in treasury		$39 04

The annual election is held on the first Monday of June. The present officers are: Tobias Bouck, President; Isaac C. Van Tuyl, Secretary; Ralph Brewster, Treasurer, of Schoharie.

Respectfully submitted.

T. BOUCK,
President.

DATED SCHOHARIE, *October* 1, 1868.

SCHUYLER.

Col. B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

In behalf of the Schuyler County Agricultural Society, I submit a brief report of its transactions for the year 1868.

The growth of the village of Watkins having somewhat encroached upon the grounds used by the society since its organization; this together with the annual increase in attendance and exhibition, demanded new accommodations.

Last summer, the society purchased new grounds in the south portion of the village of Watkins, east of and adjoining Franklin avenue, containing twenty acres, graded a track of one-half mile, after the most approved plan, put a substantial fence around it, eight feet high; erected a judges' stand, and one hundred feet of raised seats, and also a hall 140 feet long by forty wide, and other buildings, to protect and accommodate articles on exhibition.

The front fence is made of dressed boards and painted, with buttresses at intervals of two rods. In the center are four gates, two large and two small; two for entrance and two for exit, with an arch over the whole four, of over forty feet wide and thirty-five high in the center, having the following inscription and motto: "Schuyler County Agricultural Grounds and Driving Park." "Productive industry rewarded." On the right, even with, and adjoining the gates, a building is erected, forty feet long by eighteen wide; one part fitted up for ladies' rooms, during the fairs, and to be occupied, during the year, by the janitor who has charge of the grounds; and the other part of the building is used by the president and executive committee. On the other side of the gates is another building the same size, partitioned in the center with folding doors, one part being used by the treasurer and the other by the secretary, and the whole for a club room, for agricultural meetings, lectures, &c.

These buildings are well finished and plastered. A view of the front is herewith submitted.

The society held its first fair on the new grounds on the 6th, 7th and 8th of October, and were encouraged by double the attendance and double the receipts of any former exhibition. The society was favored with an able and interesting address by Hon. J. Stanton Gould, of Hudson, N. Y.

The receipts of the society were about $2,000.

I annex the report of the secretary, of the officers elected at the annual meeting in January, for the year 1869: Officers for 1869: President, Col. E. C. Frost, Watkins; Treasurer, Dr. J. W. Thompson, Watkins; Secretary, Augustus H. Moore, Watkins.

E. C. FROST,
President.

SUFFOLK.

To the Secretary of the N. Y. State Agricultural Society:

The secretary of the Suffolk County Agricultural Society respectfully presents the following report:

The board of managers of the Suffolk County Agricultural Society met at the house of Henry L. Griffin, in Riverhead, on Wednesday afternoon, April 22, 1868.

The president stated that he had received blanks for the collection of agricultural statistics in the several school districts of the county,

under the act of 1862, and requested the action of the board thereon. The treasurer explained the labor and expense which had attended, and must necessarily attend the collection of such statistics and the distribution of the volumes to which the several collectors are entitled; and then submitted the following preamble and resolution, which were unanimously adopted:

Whereas, The practical operation of the Act of the Legislature, passed, April, 1862, providing for the annual collection of agricultural statistics, increases the burden of the tax payers of this State, and occasions additional expenses to this agricultural society; and,

Whereas, In the opinion of this board, in view of these taxes and these expenses, there is no corresponding benefit resulting to the people of this State from the annual collection of such statistics; therefore,

Resolved, That the board of managers deem it inexpedient and detrimental to carry out the provisions of the said act.

The board of managers met at the Long Island House, in Riverhead, on Tuesday afternoon, December 8, pursuant to a call of the president.

The board took up the list of articles for discretionary premiums, and awarded a large number of volumes and diplomas.

The report of the treasurer, embodying the receipts and expenditures, and award of premiums, prepared for the Secretary of the State Agricultural Society, was duly signed and completed.

The premium of ten dollars for the best report of the late fair was awarded to H. Markham, editor of the *Independent Press*, Port Jefferson; and the second premium of five dollars to J. B. Slade, of the *Weekly News*, Riverhead.

The following are extracts from the prize report of the fair abovementioned:

The fair was held on the new grounds of the society, situated about one-fourth of a mile north of the railroad depot, in the village of Riverhead; where, though the managers have done enough to entitle them to the credit of possessing much energy and perseverance, there yet remains much to be done in the way of erecting permanent exhibition halls and other necessary conveniences, for the construction of which the people of the county owe the board the needed funds.

As early as half past nine o'clock on the opening day, when we arrived on the ground, there were the most cheering indications of a splendid show of specimens of almost everything that makes glad the

heart of the husbandman, or demonstrates the skill and ingenuity of the mechanic or artisan, and, though last, by no means least, most ample proof that the wives and daughters of Suffolk county men were by no means lacking in patient industry, efficient judgment, and cultivated taste. Nor did the day discredit the promise of the morning, for all through its lengthening hours the officers of the society were busied to their utmost in receiving and arranging an innumerable host of articles, possessing almost infinite variety.

Pleasant as the scenes and incidents of the day had been to us, the evening was destined to bring us even a richer enjoyment. We expected no very unusual revelations from the annual address, which was to be delivered by the Hon. Henry P. Hedges, county judge of this county; but we can, with the utmost sincerity say, it was the most pleasing part of the fair.

Without any attempt at *mere* rhetorical display, after a very appropriate introduction, his Honor struck out upon a line of thought entirely new, which he followed out with a clearness of exposition, straight-forwardness of purpose, and force and power of demonstration which proved him to be the master of the situation; and not only that, but also that few, if any, of our fellow citizens of Suffolk county have ever understood the position which the county occupies, relative to other portions of the State, in an agricultural point of view.

Thursday was a busy day for the officers of the society and the several committees for awarding premiums. The immense concourse of people assembled, together with the very large number of specimens to be examined in the several classes, and their uniform excellence, rendered the labor of the judges difficult and protracted; but our own observation of their course of proceedings, and the late hour at which their reports were handed in at the Secretary's office, assures us that they spared no pains in the faithful performance of the duties assigned to them; and to the result of those labors, as shown in the awards and recommendations which we publish to-day, we must refer the reader for any idea of what was offered for the admiration of the people and competition for the premiums of the society.

As to the number in attendance, we should say that the average number on the grounds from 9 o'clock A. M. until 4 o'clock P. M. was not less than 10,000, if it did not reach as high as 12,000 people; all of whom seemed to give themselves up entirely to the enjoyment of the occasion.

Friday, the last day of the show, was mainly devoted to the

exhibition of trotting horses; and though there was not a remarkably large number entered for competition in the three several classes, it was not because they are not in the county, or even because they were not at the fair, but for reasons which were entirely satisfactory and which can be easily supposed by those who own good steppers. However the entries, as will be seen from the report of trotting, were amply sufficient to secure a fine day's sport; and the number of people of all classes, but mainly those from the most refined circles, amounting to from 8,000 to 10,000 in all, proves how general is the love for the sports of the turf when conducted with propriety and decorum.

Just as we were leaving the grounds on Friday evening, the treasurer informed us that the total receipts would not vary far from $2,000, a sum which not only proves the growing appreciation by the people of the society and its annual fairs, but which will enable the new board of managers to commence early the great work before them of erecting suitable buildings and completing other arrangements about the grounds. But it will only begin the work, and we most sincerely hope that the people of the county will come forward with a liberality worthy of the cause, and enable the board to not only commence the work, but push it forward to an early and efficient completion.

All which is respectfully submitted.

JAMES H. DOXEE,
Secretary.

SENECA.

SENECA COUNTY, ROMULUS, *Oct.* 14, 1868.

B. P. JOHNSON, Esq:

DEAR SIR—We held our county fair last week; the receipts were something over $1,000 for the three days. The attendance was not as large as usual, but quite a fair exhibition of agricultural products and of mechanical articles, a very good display. Our fair immediately succeeding the State Fair and some town fairs in the vicinity of it, and the more than usual amount of agricultural products to be gathered and secured, and marketed, and the scarcity of farm help, made our fair less than for some years past. We have usually had over 600 members; this year 461. Our farm crops have been good; wheat a heavy amount of straw, the quality of the grain

not quite as good as usual; barley and oats good, and a very fair crop of corn. Wheat is selling at about two dollars, barley the same. The hay crop was good notwithstanding the severe drouth of the past season. Farmers are grateful for good crops and fair prices.

JOHN D. COE,
Treasurer of Seneca County Agricultural Society.

STEUBEN.

Col. B. P. Johnson, *Secretary State Agricultural Society:*

Dear Sir—In accordance with the requirements of chapter 425 of the Laws of 1855, section 9, I transmit to you a statement of the transactions of the Steuben County Agricultural Society for the past year.

At the annual meeting of the society, held at the Court House in this village, on the 8th day of January last, the following list of officers were elected for the year just ended: President, Robert B. Wilkes, of Bath, and eight Vice-Presidents; Secretary, Reuben E. Robie, Bath; Treasurer, George W. Hallock, Bath. This board of officers was composed, with but a few exceptions, of the members of the board for last year, it having been thought eminently wise and necessary, by all present, that a majority of the old officers should be re-elected, or so many of them as would secure the completion of the improvements last year inaugurated. I am now happy to say that this has been done, so that to-day we think we can boast of the best appointed fair grounds in western New York. Commencing with scarcely $500 in our treasury, but aided by the very liberal donations of the citizens of this village and of the friends of the society throughout the county, we were enabled last year to thoroughly refit our grounds, add some eight acres to them, erect new and commodious exhibition buildings and an office, and lay out and grade a new half-mile track, and enclose the whole grounds with a new and substantial board fence. At the beginning of the present year it was deemed advisable to paint the buildings and fences, and otherwise complete these improvements which has all been done. Too much praise cannot be accorded to our enterprising and able president, Mr. Wilkes, through whose untiring exertions this work has been so successfully completed. With the close of this year, the total amount of our indebtedness will have been reduced to $3,473.50; $2,639.50 of which is in the shape of a mortgage on our property, which may run twenty years.

The condition of the society never was better. Upon our rolls we have some 700 members. Our exhibitions are well attended, and there seems to be a growing disposition, on the part of all the representatives of the agricultural and mechanical industry of the county, to sustain our annual exhibitions.

ANNUAL FAIR.

Our sixteenth annual exhibition was held on the 6th, 7th and 8th of October. The weather the first two days was all that we could have wished, and the attendance large, particularly the second day. The last day, notwithstanding the unpropitiousness of the weather, quite a large crowd was present. The receipts for the first two days being quite equal to those for the corresponding days of the fair last year.

Of cattle the number of entries was not large, but the animals exhibited were of a superior class. The principal exhibitors were I. B. Van Housen, of Prattsburgh; McElwee & Robie, Savona; Daniel Curtiss, Campbell; and Samuel Crumb, Bath. Of fine-wooled sheep there were some very fine animals from the well-known flocks of Valentine Bouton, of Avoca, and Frank J. Marshall, Wheeler; of Cotswolds, there was also a fine show from the flocks of A. C. & Monroe Brundage, of Bath; of long-wooled sheep there was also a good show. But the great attraction of the sheep department was the Spanish merino ram, "Faultless," valued at $2,000, owned and exhibited by Mr. L. D. Wright, of Waybridge, Vt.

The show of stallions, matched horses, single horses, mares and colts, was excellent, although not as large as we have sometimes seen. Of grain and vegetables, swine, poultry, machinery, leather and harness, the entries were creditable. But perhaps more competition was shown among the ladies, to determine the excellence of their various entries of dairy and family products, and canned fruits, than in any other department. The number of entries was very large, and evinced a determination on the part of the ladies of the county to sustain our annual exhibitions; of domestic manufactures, there was a large display also. The exhibition of grapes and wines was good; the Pleasant Valley Company making a large and worthy show of their various brands of wines, brandies, &c., together with a fine display of grapes, from their experimental grounds; of grapes, however, Mr. T. M. Younglove, of Hammondsport, an old and experienced grower, must be said to have presented the finest exhibition. Of apples, pears, fancy articles, &c., there were a goodly number of entries.

The most attractive portion of agricultural hall, was the east gallery, where were exhibited the valuable collections of Dr. J. W. Velie, and Col. Wm. Rumsey, of Bath.

Dr. Velie has a very large, and one of the most complete collections of stuffed birds and insects that we have ever seen, gathered almost entirely by himself and which he values at $4,000. Col. Rumsey exhibited his very fine collection of Japanese curiosities and photographs. The society is greatly indebted to both these gentlemen for so kindly placing their valuable collections at its disposal.

The annual address was delivered at 2 o'clock P. M., of the third day, by the Rev. Dr. Howard, of Bath, and was in every respect, a valuable discourse.

The following are the officers elected to serve for the ensuing year: President, Frank J. Marshall, Wheeler; Secretary, Reuben E. Robie, Bath; Treasurer George W. Hallock, Bath.

The following is an account of the receipts and expenditures of the society for the year ending December 31st, 1868:

Receipts.

Cash on hand at beginning of year	$100 55
received from State in February	181 25
from B. F. Young, agent Johnston estate	50 00
from Maj. D. H. Hastings	50 00
from use of driving park (annual fees)	60 00
from annual memberships	788 00
from gate fees at fair	826 07
from licenses at fair	16 00
from annual fair dance	162 75
from driving park	739 20
from State, November 20th	353 44
from premiums donated society	6 00
	$3,333 26

Expenditures.

Cash paid for premiums	$604 20
Interest on mortgage debt paid	184 73
Interest and part of principal on societies $1,500 note	1,005 00
Painting buildings and fences	241 60
Other current expenses of the year	1,246 89
Balance in hands of treasurer	50 84
	$3,333 26

R. E. ROBIE,
Secretary.

Bath *Dec.* 31, 1868.

TIOGA.

OWEGO, TIOGA CO., N. Y., *March 4th*, 1869.

Secretary State Agricultural Society:

DEAR SIR—In compliance with your request, I send you report of the annual fair of the Tioga County Agricultural Society for 1868.

The fair was held the 30th of September, the 1st and 2d of October, and I regret to say was a failure, owing to two facts; first the want of coöperation of the farmers, fearing that the horsemen would reap the greatest benefit, and the dissatisfaction of the horsemen that all the premiums were not offered them. The articles exhibited were few, and the rain prevented many from attendance. The receipts were $350, about one-half the expenses. Unless the whole thing is reorganized, and the people take more interest than they have done, I fear the days of the society are told. New officers were elected in October, but they refuse to serve unless the debt is extinguished.

I received a package of blanks, and informed the newly elected secretary, but he refuses to receive them. They are subject to your disposal.

Respectfully yours,

H. N. GREENE,

Late Secretary Tioga County Agricultural Society.

TOMPKINS.

The twenty-ninth annual fair of the Tompkins County Agricultural and Horticultural Society was held on the grounds of the society, in Ithaca, on the 22d and 23d days of September, 1868. There was a good show of horses, single and double teams. The cattle were out in goodly numbers, and elicited merited praise by lovers of neat stock. The exhibition of sheep was creditable to those engaged in that particular branch of agricultural industry. The display of farm implements gave evidence that the mechanical industry of Tompkins county was alive to the wants of the farmer. The fruit department was filled with apples, pears, grapes, well calculated to please the eye and more particularly the taste. The large hall of the society was filled with fancy articles, and the display added to the interest of the fair.

The receipts of the fair were	$429 05
Expenses	81 25
Premiums paid	350 00

The annual meeting of the society was held at the Ithaca hotel, Jan. 6, 1869. Col. Henry Brewer was called to the chair, and O. B. Curran, secretary. The report of the treasurer was made of the financial condition of the society, and the following were duly elected officers for the year 1869: President, Henry Krum, 2d, of Caroline; Secretary, Thomas J. McElheney, Ithaca; Treasurer, O. B. Curran, Ithaca; and nine Vice-Presidents, one from each town in the county.

O. B. CURRAN,
Treasurer.

ULSTER.

To the Secretary of the New York State Agricultural Society:

The president, secretary and treasurer of the Ulster County Agricultural Society, in pursuance of section 8 of chapter 339 of the laws of 1853, make the following report:

The annual fair of the society was held at Kingston, on the society grounds, on the 22d, 23d and 24th days of September, 1868. The exhibition showed a gradual progress amongst the farmers of the county, in their calling, and an increasing interest in the society's fairs. The weather was not propitious for the fair, some rain falling on each day of the fair, yet, the attendance the last day was full, and the receipts at the gate were sufficient to pay the amount of premiums awarded and to leave a small balance in the treasury. The prospects of the society are improving, and the hope is entertained that the society debt will be gradually extinguished.

The following is a statement of the receipts and expenditures of the society, as contained in the annual report of the treasurer, and as entered on the minutes of the society:

Disbursements.

Premiums of 1866	$1 00	
Premiums of 1867	5 00	
Premiums of 1868	503 00	
Repairs and supplies	23 68	
Printing	132 00	
Attending gates, and police	140 00	
Postage stamps and stationery	15 55	
Interest	127 15	
Cash loaned	2,350 00	
Sundries	90 65	
Balance due Cor. Burhans, from account Sept.	1,035 51	
		$4,423 54

RECEIPTS.

On account of stock	$435 00	
Receipts of fair	929 05	
From State	505 19	
Notes (cash loaned)	2,350 00	
		$4,219 24
Balance due treasurer Jan. 7, 1869		$204 30

The number of shareholders is	144
Number shares of stock issued is	228

INDEBTEDNESS.

Mortgage to Wm. H. B. Shoemaker	$800 00
Interest from April 1, 1868, to January 7, 1869	42 94
Unpaid premiums of 1866	21 00
Unpaid premiums of 1867	22 00
Unpaid premiums of 1868	63 00
Balance due treasurer	204 30
Total indebtedness January 7, 1869	$1,153 24

Submitted *January* 7, 1869.

COR. BURHANS,
Treasurer Ulster County Agricultural Society.

At the annual meeting of the society, held at Hanver's hotel, in Kingston, on the 7th day of January, 1869, the following named persons were elected directors of the society for the ensuing year: James Kiersted, Henry S. Van Etten, William Lounsbery, Frederick L. Westbrook, John Vignes, Peter E. Jansen, Henry D. Laflin, Peter H. Brink, John Crispell, Thomas Hamilton, Christopher L. Kiersted, William P. Cole, Jr., John James Cole, Silas Snyder, Cornelius Burhans.

At a meeting of the directors, held at the same place, on the 19th day of January, 1869, the following were selected as officers of the society, viz: President, James Kiersted; Vice-President, Henry S. Van Etten; Secretary, William Lounsbery; Cor. Secretary, Frederick L. Westbrook; Treasurer, Cornelius Burhans.

WM. LOUNSBERY,
Secretary.

WARREN.

Secretary New York State Agricultural Society:

In accordance with your recommendation, and in compliance with the law regulating county societies, permit me to hand you a brief statement of the transactions of our society for 1868.

The annual meeting was held January 7th. The following officers were duly elected: Henry Griffing, President; Morgan Burdick, Treasurer; E. W. Hunt, Recording Secretary; W. H. St. John, Corresponding Secretary; six Vice-Presidents, and six Directors. After the transaction of some minor business the meeting adjourned.

The executive committee met on Tuesday, June 2d, at Geo. Brown's "Half-way House," and decided that the next fair be held on the grounds of Mr. Brown, at French Mountain, the same as occupied by the society for several successive years. A. Goodrich Hawley was appointed marshal.

A special meeting was called August 11th, at same place. The death of Morgan Burdick, Esq., treasurer, was announced. A ballot was had to fill the vacancy, and C. W. Osborn was unanimously elected.

In the death of Mr. Burdick the society has sustained a great loss. He was one of twelve gentlemen who incorporated the society, February 2d, 1857, and had continued an earnest worker for its prosperity until the time of his death.

The fair was held September 29th and 30th, and October 1st. The exhibition of cattle, both native and "blood," was very creditable. A marked improvement in this direction is evident.

The native, long wool, and merino sheep and lambs were pronounced by visitors to be second to none. To Joseph Haviland, Jr., and Harris G. Haviland, the county is indebted for the introduction and perpetuation of this magnificent breed of merino. Around the pens of this class, as also the splendid *Cotswold's* exhibited by Nelson Hull, and the *Long Wools* shown by John Harris, there was a constant throng of visitors, whose expressions of admiration encourage the exhibitors to come again.

A fair show of horses was made, but we hope for a better entry another year.

The swine exhibited by George Brown and A. G. Hawley, are favorites with all who are fond of good pork, and as heretofore, when shown, took first premiums.

The coops of poultry, mostly from the stock of George K. Hawley, are among the best and rarest known.

We are glad to notice that in the line of farm and garden produce a steady improvement in quality and variety was apparent.

A large entry of manufactured articles was made, prominent among which were the carriages from the shops of Messrs. Joubert & White, and George W. Ferris, and which are not excelled in style and workmanship by any. The cloths and cassimeres from the factory of Q. Curtis, of Queensbury, demand special commendation.

Home Industry.

In this department the numerous articles of elegance and utility displayed, manifest in a remarkable manner the ingenuity and skill of the designers, and call for higher encomiums than the space alloted us will permit, or the *fertile brain* of your humble servant can produce.

Wine, Fruit and Flowers.

In this class there was a good entry, but we confidently anticipate an improvement in future exhibitions.

An able, interesting, and instructive address was delivered by Judge A. Bockes, of Saratoga Springs. We were unable to procure a copy of it for publication. The arrangements for the exhibition were so carefully made, and the efficiency of the marshal so marked, that everything passed off harmoniously. The society labors under the disadvantage of not owning proper grounds for its use, and while Mr. Brown is untiring in his endeavors to provide for all who visit the exhibition, his accommodations are so limited that it is hoped another locality may be selected. We are satisfied that with convenient and commodious grounds and buildings, at a point where there is more than one hotel, a very largely increased attendance of exhibitors and visitors will result.

Financial.

The cash receipts were $1,281.84. The amount on hand at close of year, $220.75.

The following have been chosen for the year 1869: President, Henry Griffing; Treasurer, C. W. Osborn; Recording Secretary, A. Newton Locke; Corresponding Secretary, W. H. St. John; and six Vice-Presidents.

All of which is respectfully submitted.

A. NEWTON LOCKE,

Glen's Falls, *June* 7, 1869. *Recording Secretary.*

WASHINGTON.

The annual meeting of the Washington County Agricultural Society was held at Barker's Hall, Granville, December 8th, 1868.

The treasurer's report read and adopted, showing the finances of the society to be as follows:

Balance on hand, January 8, 1867		$1,140 36
Received for two life memberships		20 00
" first day of fair		165 00
" second day of fair		1,100 00
" third day of fair		807 00
" fourth day of fair		273 29
State appropriation		299 80
Interest on life membership		72 31
		$3,877 76
Premiums and expenses for the year	$2,454 22	
Life membership	170 00	
Unpaid liabilities	72 00	
		2,696 22
Available balance, December 8, 1868		$1,181 54

The following officers were elected for the year 1869: President, I. V. Baker, Jr., Comstock's Landing; Recording Secretary, R. W. Pratt, Fort Edward; Treasurer, W. M. Holmes, Greenwich; Corresponding Secretary, Milo Ingalsbe, South Hartford.

WAYNE.

To the Secretary of the New York State Agricultural Society:

The Wayne County Agricultural Society makes the following report of its proceedings during the year 1868, pursuant to Chapter 425, of Laws of State of New York, passed April 13, 1855.

The annual fair of said society was held on the society's grounds, in Lyons, N. Y., October 21st and 22d. The weather was unpropitious, a snow storm occurring during the second day of the fair. Notwithstanding the unfortunate circumstances attending the exhibition, the attendance of the public was quite large, and the display in many of the departments, particularly that of fruit, surpassed anything we have had for years. The people in this section are alive to the importance of having their fairs well sustained, and under ordinary circumstances, believe that their exhibitions are hardly surpassed by any in this section.

Herewith please find enclosed detailed report of receipts and expenditures during the year 1868–69, with list of premiums awarded, to whom awarded, and the list of officers for 1869.

1868.	RECEIPTS.		
February 1.	From State appropriation	$157 00	
	H. G. Dickinson, president of society balance in his hands	15 00	
October 21.	Entrance fees to grounds of society during fair	130 00	
" 22.	Entrance fees	134 45	
1869.			
January.	Rent of society's grounds	120 00	
do	State appropriation	307 12	
			$863 57
	PAYMENTS.		
	Expenses and debts	$795 45	
	Premiums	75 20	
			870 75
	Balance to Dr.		$7 18

The officers for 1869, are President, J. N. Bradley; Secretary, John L. Cole; Treasurer, Samuel I. Cole, all of Lyons.

JOHN L. COLE,
Secretary.

WESTCHESTER.

Officers for 1869: President, Fordham Morris, West Farms; Treasurer, N. Holmes Odell, Greenburgh; Recording Secretary, John Cowan, White Plains; Corresponding Secretary, Daniel K. Sherwood, White Plains.

WYOMING.

TREASURER'S REPORT.

Receipts.

From old life members	$49 70
new "	21 00
annual members	146 00
single tickets at fair	296 95
pasturage	100 00
licenses for the use of grounds, &c.	85 00
State bounty	273 00
	$971 65

Expenditures.

Premiums on articles	$322 70
" trotting	164 75
Police accounts	41 00
Old accounts	80 49
Clerk hire at fair	51 00
Repairs and labor for fair	119 50
Printing account	80 00
Cash on hand	112 21
	$971 65
Notes and accounts now on hand	$303 00

Officers for 1869: President, Emory B. Chace, Gainsville; Treasurer, H. A. Dudley, Warsaw; Secretary, Lockwood L. Thayer, Warsaw.

YATES.

To Col. B. P. JOHNSON, *Secretary of the New York State Agricultural Society:*

The undersigned, the president, secretary and treasurer of the Yates County Agricultural Society, in compliance with the act of April 13, 1855, do hereby make to you a statement of the transactions of the said society for the year 1868, as follows:

The fair grounds belonging to the society, situated in the village of Penn Yan, were put in good order, and the buildings and fixtures of the same added to and repaired at an expense of about $325.

The annual fair was held on the grounds October 7th, 8th and 9th, and was a decided success. The show of horses, cattle and sheep, both in numbers and quality, was unequaled by any former fair. The exhibition of swine and farming implements was rather meager. The ladies department was well sustained, and the number of people in attendance very large.

The receipts for the year were as follows:

Balance received from officers of last year	$264 48
Received from State appropriation	
Received for admissions to fair	1,344 00
Total	$1,608 48

The expenditures were for repairs to grounds and buildings	$325 00	
For expenses of the fair	416 60	
For cash paid on premiums	606 00	
		$1,347 60
Leaving a balance on hand of		$260 88

C. H. KETCHAM.
GEO. Y. EASTMAN.
O. G. SHEARMAN.

Dated at Penn Yan, *the 2d day of March*, 1869.

REPORTS

OF TOWN AND UNION AGRICULTURAL SOCIETIES AND FARMERS' CLUBS.

Annual Report of the Board of Trustees of the American Institute of the City of New York.

In presenting their annual report, the trustees would first respectfully direct attention to the financial condition of the Institute. During the past year its income has largely exceeded its expenditures, and $10,000 of the surplus have been invested in government bonds. For a full statement of its accounts reference is made to the exhibit of the finance committee.

The real estate on Broadway and Leonard street, which is its principal source of income, was again leased to the first of May, 1869, at the rate of $20,000 per annum. No purchaser has yet been found for this property at the price fixed upon it by the Institute, although that price is regarded by many as below its present value. The interests of the Institute now require that its funds should be made more available in anticipation of the early purchase of lots, and the erection of a building for its own occupation, and the Board would suggest that the Institute should take further action in the premises.

It is a subject of congratulation that the various organizations under the control of the Institute have never been more energetic and efficient than at present.

The meetings of the Farmers' Club, during the past year, have been large, and the communications it has received from all parts of the country have added much to the interests of its proceedings. These are reported in the semi-weekly, and weekly editions of the leading journals of the city, and as they are read by not less than a million of persons, it is not too much to say that the American Institute, through its Farmers' Club alone, exerts a wider influence than any other society ever formed for the diffusion of useful knowledge.

The Polytechnic Association continues to be an efficient auxiliary of the Institute. It has discussed, in the presence of large audiences, questions relating to mechanics, chemistry, mining and engineering; examined many new inventions, and furnished regular reports on the general progress of science.

The photographical section has held monthly meetings, which have been attended by some of the leading, practical, and amateur photographers. Its proceedings have been of too technical a character to interest any but those who understand something of the chemical action of light, yet they contain much of interest to the large class who are now practicing the most beautiful of all modern arts.

The proceedings of the several societies mentioned, and a very full report of the exhibition of 1867, form the bulk of the volume of Transactions, which is by far the largest of our series (soon to be issued by the State printer).

Under the authority conferred by the by-laws, the Board of Trustees inaugurated, in November last, a course of scientific lectures, which have been continued weekly since that time, and will close on the 10th day of February, the day preceding the annual election of officers. It was deemed best to introduce in this course a great variety of topics, and to engage as lecturers scientists of established reputation, and mostly from our leading institutions of learning. The project excited unusual public interest, and was warmly approbated by the press. These lectures have been the means of bringing the American Institute more directly to the notice of a large class of citizens who formerly knew little of its operations; they have also brought together many members with their families, who seldom visit the rooms of the Institute.

The steadily increasing attendance throughout the course is the best evidence of its popularity; and its success is more marked from the fact that no extended series of lectures, of a similar character, have before met with public approval. It has been demonstrated that science, when expounded by competent teachers, and illustrated with experiments and attractive diagrams, will command attention, and cannot fail to exert a beneficent influence. The Board of Trustees, therefore, recommend that the system now inaugurated be continued from year to year.

For reasons set forth in the report of the Board of Managers, no general exhibition was held in the fall of 1868. So long as the Insti-

tute depends on securing the temporary occupation of premises there must necessarily be some uncertainty as to the holding of an autumnal exhibition. This uncertainty naturally influences the action of those manufacturers and producers who are desirous of competing for premiums, but who seldom make any preparation therefore until they receive our circular, announcing the holding of our exhibition, which, as a general rule, is not issued more than two months in advance. All the annoyances and vexations arising from the spasmodic action of the Institute, in its preparation for an exposition, are so thoroughly appreciated by its members that it is believed they will heartily co-operate in any scheme which will secure for it a permanent structure commensurate with its wants.

The holding of an exhibition during the coming fall has been determined earlier than usual, by the action of the Institute, in relation to the correspondence between the President of the National Association of Wool Manufacturers, and the President of the Institute. A proposition from that association for a joint exposition of wool industry, under the auspices of the American Institute, having been accepted, the executive committee of that association have already circulated two thousand blank applications for space, with a request that each manufacturer should specify, as minutely as possible, the character and varieties of goods and articles to be exhibited, and with respect to machinery, the amount of space to be occupied by each machine. The circular states that it is highly important that returns should be transmitted before February 1, 1869, to John L. Hayes, Esq., of Boston, secretary of the executive committee, that the Institute may have information of the space required for the exposition, as arrangements for building must be made in February. From the prompt action of the executive committee, it is inferred that the National Association of Wool Manufacturers will make a very large display, and it is highly important that measures be early taken by the managers, to be elected on the 11th of February, in relation to providing suitable buildings for the next general exhibition, which promises to be much larger than any yet held.

The reports of the standing committees, to be presented at this meeting, will show the faithful manner in which their several duties have been performed. Valuable additions have been made to the library, and of late there have been large accessions to the list of members. On reviewing the operations of the year, the trustees find

abundant cause for congratulations, and they hope its members will be reassured that the Institute is steadily progressing in power and usefulness.

All of which is respectfully submitted.

HORACE GREELEY,
DUDLEY S. GREGORY,
ORLANDO B. POTTER,
CHARLES P. DALY,
SAMUEL D. TILLMAN,
SYLVESTER R. COMSTOCK,
Trustees.

NEW YORK, *February* 4, 1869

Receipts and Disbursements of the American Institute of the City of New York, for the year ending January 31, 1869.

Balance in the treasury Jan. 31, 1868		$5,540 08
RECEIPTS.		
Rental of property	$20,000 00	
Admission fees and dues, and from life members	2,856 00	
From managers of the 37th annual fair	215 96	
State appropriation of 1867	1,187 50	
Interest on investments	429 78	
Miscellaneous sources	122 74	
		24,811 98
		$30,352 06
DISBURSEMENTS.		
Taxes, assessment, and insurance on property	$3,590 59	
Repairs	152 78	
Books, periodicals, and binding	695 38	
Book cases and furniture for library and rooms	576 16	
Rent at Cooper Union and gas light	2,011 53	
Bills for the 37th fair	542 15	
Printing and stationery	491 39	
Reporting for Polytechnic and Photographical Sections	107 00	
Freight and express—Transactions from Albany	99 30	
On account of course of scientific lectures	1,513 50	
Salaries	4,229 66	
New frame—portrait of Ex-President Tallmadge	28 00	

Newspapers, advertising, postage and incidental expenses	$697 45	
	$14,734 89	
Invested in United States bonds	10,612 50	
		$25,347 39
Balance in bank, Jan. 31, 1869		$5,004 67

THOMAS M. ADRIANCE,
THOMAS WILLIAMS, Jr.,
CYRUS H. LOUTREL,
CHAS. CHAMBERLAIN,
SIMEON BALDWIN,
Finance Committee.

AFTON.

Afton, *March 4th*, 1869.

Secretary State Agricultural Society:

Dear Sir—I herewith send you the financial report of the Afton Agricultural Society:

Amount on hand, February 1, 1868, at last report	$64 63	
Membership	97 50	
Admission	138 80	
		$300 93
Paid on premiums	$127 60	
for printing	52 00	
other expenses	47 21	
		226 81
Balance		$74 12

Respectfully yours,
G. M. CHAMPLIN,
Secretary.

ALLEN SETTLEMENT.

Maine, *March 4th*, 1869.

Secretary N. Y. State Agricultural Society, Albany:

Dear Sir—Yours of March 1st came to hand to-day. I did send my report for 1868 some months since; perhaps it has been miscarried.

Our officers are as follows: President, Wm. A. Marean; Vice-President, Matthew Allen; Secretary and Treasurer, Spencer S. Allen; Assistant Secretary, Belden Allen; Librarian, W. Marean.

We continue to hold our club meetings every week, and the interest which is manifested is continually increasing. We have been in the field as a farmers' club for seven years, having organized in 1862.

SPENCER S. ALLEN,
Secretary Farmers' Club, Allen Settlement.

ANNSVILLE AND LEE INDUSTRIAL ASSOCIATION.

Receipts for 1868	$367 50
Premiums paid	237 50

JULIUS C. THORNE,
Secretary.

BARTON.

WAVERLY, N. Y., *February* 24, 1869.

B. P. JOHNSON, Esq.:

DEAR SIR—I have not very favorable news to report for the Barton Agricultural Society, as it was very wet weather last season when we had our fair. We held our annual meeting, and for officers, in 1869, there have been elected: President, J. T. Sawyer; Treasurer, W. E. Moore, Secretary, Jas. S. Murray. We will endeavor to make a better report for this year.

Truly yours,
JAMES S. MURRAY,
Secretary Barton Agricultural Society.

BROOKFIELD.

To B. P. JOHNSON, Esq., *Secretary New York State Agricultural Society, Albany, N. Y.:*

DEAR SIR—The managers of the Brookfield Agricultural Society would, in presenting their annual report, say that our society has, with fair prospects of continued prosperity, entered upon its twentieth year. It was among the earliest of town organizations in this State, and its present membership, which numbers about 250, includes many

who gave their names and money to the "experiment" in 1849, and who are still sanguine that in no other way, with so small a sacrifice, could so large a contribution have been made to the material resources of the town. Its area, 46,000 acres, is mainly best adapted to grazing purposes, but the valleys of the Unadilla and Chenango rivers and Beaver creek produce annually large crops of the great staples of central New York, particularly Indian corn and oats, which, with thousands of bushels of western importation, are annually fed upon our farms. Agricultural competition here is, therefore, in a great degree confined to stock raising and dairy products, to which may be added the culture of hops, for many years a source of satisfactory revenue, but latterly quite uncertain of production, in consequence of mildew and insects.

In the matter of stock breeding we are under great obligations to our townsmen L. and T. Hoxie, the Messrs. Cheesbro and Wm. H. Crandall and others, for Devons and grades, and to S. H. Burdick and others, for blood Durhams, whose untiring efforts in this direction have produced a radical reform, the results of which can never again be overlooked by our leading farmers.

We have ten cheese factories in successful operation, which, as they are superseding home manufacture, tend to produce a greater uniformity in quality and price of the manufactured article so desirable to all parties.

The transactions of our society for 1868 were as follows:

Total cash receipts	$567 95

Disbursements.

For grading grounds in 1867	$150 00
For premiums and expenses of 19th annual fair	417 95
	$567 95

We have also distributed the gratuities of the department of agriculture and of our own State society, consisting of books and seeds, as they have come to hand. The following were elected officers for 1869, at the annual meeting: President, Morgan L. Brown; Secretary, Calvin Whitford; Treasurer, Henry Brown.

Respectfully submitted.

C. WHITFORD,

March 20, 1869. *Secretary.*

CAMDEN.

CAMDEN, *March 8th*, 1869.

B. P. JOHNSON, Esq., *Secretary State Agricultural Society:*

DEAR SIR—Our report of doings of Camden Industrial Association, at twelfth annual fair, as reported by our treasurer and recording secretary, is enclosed.

We have had our fair on the same grounds for twelve years, and have a lease of the same for five years more; our town fair, you will see by our secretary and treasurer's report, is a perfect success. We are so organized that we are an agricultural and mechanical body. Our last address was delivered by John F. Seymour.

Our present organization consists of the following officers: Hon. Chas. D. Penfield, President; C. J. Wright, Secretary; Robert Frazier, Corresponding Secretary; Spencer J. Upson, Treasurer; two Vice-Presidents, and four members of Executive Committee.

Respectfully, yours,

ROBERT FRAZIER,
Corresponding Secretary.

Amount in treasury, January 1, 1868	$549 50
Receipts of fair of 1868	929 33
	$1,478 83

Paid for repairs of track, buildings, &c	$336 59
Premiums	381 27
Expenses	318 52
Balance in treasury, January 1, 1869	442 45
	$1,478 83

CASTLE CREEK.

December 8th, 1868.

Hon. B. P. JOHNSON:

DEAR SIR—At our last election the following were elected officers of our club.

Geo. S. Bowen, President; Isaac Emens, Vice-President; S. P. Allen, Recording Secretary; P. B. Spencer, Corresponding Secretary James Gaylord, Treasurer; B. J. Alderman, Librarian.

We have a very good library, and hold weekly meetings, the most of the winter.

Yours, respectfully,

ISAAC EMENS,

Acting Corresponding Secretary of Farmers' Club,

Castle Creek, Broome County, N. Y.

CAZENOVIA.

Cazenovia, N. Y., *February* 13*th*, 1869.

Benj. P. Johnson, Esq.:

Dear Sir—At the annual meeting of the Cazenovia Farmers' and Mechanics' Association, the following officers were elected for the ensuing year: President, Jabez C. Tillotson; Treasurer, Bowman H. Stanley; Secretary, Irving C. Forte.

Yours, truly,

I. C. FORTE.

CHAUTAUQUA TOWN.

Report of the Chautauqua Town Agricultural Society of our 2d Annual Fair, Held at Mayville, the 16th and 17th of September, 1868.

Mayville, *February* 14th, 1869.

We had a goodly number of entries; about 3,000 people to participate in our show. Our show of sheep was fine; exhibited by Morton Prendegast, and G. McStephen Hunts. Our show of Durhams and grades was very fine. Address delivered by Oscar W. Johnson, of Fredonia, who said that our exhibition of fruit was ahead of anything that he had seen this year. Floral hall was finely filled. the show of horses was very creditable to the society. On the whole, we were very well satisfied with the exhibition in all respects.

ROBERT LAWSON, *President.*

WM. WHALON, *Secretary.*

CLAY.

Liverpool, N. Y., *Jan*, 20, 1869.

B. P. Johnson, *Secretary New York Agricultural Society:*

Sir—I have the honor to submit this, the ninth annual report of the "Farmers' and Mechanics' Club, of Clay," hoping it will meet your approval, and that of enlightened agriculturists generally.

The agricultural condition of the territory within the limits of our agricultural society (northern section of the county of Onondaga) was never more flourishing. High prices, accessible markets and crops of average abundance, have insured good profits, and as a result farmers are getting out of debt, farm buildings erected, permanent improvements made, farm implements and machinery obtained.

It would be highly appreciated were the State to distribute, through the State Agricultural Society and its auxiliaries, seeds and agricultural documents; the members would be encouraged to sustain and yield material support to such associations, by making them the agents of the State in dispensing such favors, and rendering it the interest of farmers to connect themselves, as active members, with such associations.

The treasurer, Mr. Artemas Baum, reports the financial condition of the society as follows, to wit:

Receipts of the society		$347 30
Expenditures, printing, &c.	$128 74	
Premiums	215 65	
		344 39
Leaving a balance in his hands of		$2 91

I herewith transmit you a list of the officers for the ensuing year. President, Dr. M. H. Blynn, Cicero; Secretary, L. Harris Brown, Plank Road; Treasurer, A. Baum, Plank Road; with a corps of Vice-Presidents and the customary Directors according to the requirements of the law on the subject.

Respectfully yours,

J. F. MOSCHELL,

President.

CONSTANTIA.

The agricultural society of the town of Constantia, in the county of Oswego, New York, held their regular annual fair on the 16th and 17th days of September, 1868, on their well chosen and selected grounds on the shore of Oneida Lake, comprising about five acres of ground. This fair is year by year fast rising into importance little inferior to our county fair. The show of horses and cattle was not only large, but evinced a marked discriminating judgment on the part of exhibitors in selection of their different stock. The great improvement in the qualities of wool, and of articles manufactured

therefrom, called for general commendation. This part of the county, though carrying on a vast manufacturing business on account of its immense power in water privileges, is nevertheless fast becoming identified with the agricultural interest, and being settled with men of means and inclination for farming pursuits, there is little doubt but that this town will ever be found in advance of her neighbors in those great interests which invariably manifest a people's advancement and enterprise.

The attendance the present year was larger than any previous, whilst the actual receipts showed a corresponding increase. The officers elected for the following year, 1869, are as follows: James Dickie, President; Frederick C. Lander, Secretary; Jerome Taylor, Treasurer.

Respectfully submitted,

F. C. LANDER,

Secretary.

CUBA VALLEY POINT.

We, the undersigned president, secretary, and treasurer of the Cuba Valley Point Agricultural and Mechanical Society, in pursuance of the provisions of chap. 425 of the Laws of 1855, do hereby transmit to you the following statement of the transactions of said society for the period from the organization of said society on the 10th day of August, 1868, to the 1st day of January, 1869.

On the 10th day of August, 1868, a meeting was held at Palmer's Hall, Cuba, New York, for the purpose of completing the organization of an associate agricultural and mechanical society to be composed of the towns of New Hudson, Cuba, Clarkesville, and Bolivar, in Allegany County, New York. E. D. Loveridge was the chairman of such meeting.

The following proceedings were had: E. D. Loveridge, of Cuba, was chosen President of such society; G. H. Eldridge, of Cuba, Secretary; James A. Story, of Cuba, Treasurer; Samuel H. Conaut, of Cuba, Vice-President; Henry A. Mead and Samuel H. Conaut, of Cuba, Joseph Truax and N. D. Bell, of New Hudson, Martin Butts, of Clarkesville, and D. A. Newton, of Bolivar, were elected Directors of said company.

Henry A. Mead and Joseph Truax were designated to serve one year; N. D. Bell and S. H. Conaut for two years; Martin Butts and D. A. Newton for three years.

August 13, 1868, society met, adopted by-laws and resolved to hold their first fair on October 13, 14 and 15, 1868, on the driving park of Russel Smith, who had generously offered the society the free use of the park for their fair.

The following are the receipts and expenditures of the society from its organization, August 10th, 1868, to the date hereof:

From the sale of annual membership tickets	$352 00
Entrance fees at fair	952 59
Entrance fees, horses to trot	402 50
Donation	50
	$1,707 59

EXPENDED.

To cash paid purses horses to trot	$1,005 00	
printing bills	121 95	
premiums paid	290 50	
cash paid expenses two bands of music	96 50	
other expenses	137 03	
		1,650 98
Balance in Treasury		$56 61

We further report that the first fair was a complete success, that our society is in a flourishing condition. We have not yet elected our officers for the ensuing year.

G. H. ELDRIDGE,
Secretary.

DELHI.

DELHI, DELAWARE COUNTY, N. Y., *January* 1, 1869.

B. P. JOHNSON, Esq., *Secretary of N. Y. State Agricultural Society:*

DEAR SIR—The undersigned officers of the Delhi Agricultural and Mechanics Society, make the following report of its operations for the year 1868:

The 24th and 25th days of September were fixed upon for the seventh annual fair and cattle show of the society. A considerable number of entries were made and stock brought on the grounds, but the weather was so very unfavorable that on the morning of the second day a postponement was deemed advisable, and the 8th and 9th days of October fixed upon for the second meeting. During the time between the meetings, the society leased, for a term of years, lands adjoining, by which the grounds of the society were more than

doubled in extent, and enabled it to construct a full half-mile track within the enclosure. This it was thought would increase the exhibit of horses, affording as it does a fine chance for displaying them to advantage. The weather, on the days of the adjourned fair, was very fine and the attendance large, which assisted materially in increasing the finances of the society. The exhibit as a whole was not equal to those of most previous years, owing to the very bad weather the two first days, the rules requiring the entries to be made at that time. There was however enough to show a steady improvement in the rearing of blooded stock of all kinds, and also improvements in farming implements. In the vegetable department, and also in grain and dairy, the exhibit was fair, perhaps equal to other years. The crop of fruits of all kinds was very small in this section. There were some choice and excellent varieties on exhibition, but they were the produce of much care and attention, which the general crop cannot receive. The society having a large and commodious room for the exhibition of small articles, ladies' handiwork, &c., the weather did not deter them from making the usual display. The enlargement of the grounds, the increase in the length of the trotting track, with the fine weather the last two days, made the fair financially a success. Last year, after paying the premiums awarded, expenses, and interest on our debt, there was a small deficit in the treasury. This year, after paying similar items of expense, besides the cost of improving the enlarged grounds, and also the rent of the same, making good the deficit of last year, there is still a balance in favor of the society, which we hope to increase next season. Meetings for conversational discussion of agricultural subjects, which is believed to have been beneficial heretofore, have been revived this winter.

Officers of the society for 1869: James H. Graham, President; Pareck H. Beardsley, Vice-President; Henry Davie, Secretary; Anthony M. Paine, Treasurer.

J. H. GRAHAM, *President.*
ANTHONY M. PAINE, *Treasurer.*

EAST MAINE.

East Maine, Broome County, *Feb. 13th*, 1869.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

Dear Sir—The Farmers' Club, of East Maine, is still in good working order, meeting on Wednesday evening of each week for discussion of subjects pertaining to agriculture. Although our

regular meetings have not been so well attended so far this winter, I think the discussions have been more interesting and instructive than ever before.

At the annual election the following officers were elected for the season: For President, Abm. H. Green; Vice-President, William Hogg; Secretary and Treasurer, Robert Hogg; Librarian, Thomas Hogg. (Post-office, East Maine; express office, Binghamton.)

The report of the treasurer showed a *deficit* of $3.20, owing to the recent purchase of lamps, and case to hold them in, the meetings being held in a school-house.

The library has, since the last report, received the reports of the State Society and Institute, the agricultural report from the department at Washington, monthly reports of the department, report of Surveyor-General, report of committee on plowing, N. Y. State Agricultural Society.

The secretary receives the *Journal of the N. Y. State Agricultural Society;* the material contents reported to the club at its next meeting after it is received.

The club has thirty-six members. The books received I distribute to the officers and members, as far as they go; giving first to those who have attended the meetings the best. They are eagerly inquired after, and carefully read by all; and are of the greatest value in maintaining an efficient farmers' club. I hope we will soon receive some.

Yours truly,

ROBERT HOGG,

Secretary.

ELLISBURGH, ADAMS, AND HENDERSON.

Belleville, *December* 16, 1868.

Treasurers Report of Ellisburgh, Adams, and Henderson Agricultural Society from December 15*th*, 1867, *to December* 16*th*, 1868.

1868.	
To amount on hand as per last report	$572 56
To am't from members at annual meeting	12 00
" " members tickets, two days fair	435 00
To amount from gate tickets two days fair	205 31
" " entrance on speed	22 50
" " rent of ground	82 00
" " donations	15 50
" " interest from cash on hand	31 50
	$1,376 37

The disbursements are as follows:

By amount paid for premiums	$467 00	
" " printing	56 50	
" " speaker	50 00	
" " fair ground	50 00	
" " police and gate tenders	71 00	
" " tent and lumber	41 52	
" " other expenditures	64 50	
		$800 52
Balance on hand		$575 85

A. DICKINSON,
Treasurer.

December 16, 1868.

GALEN.

Clyde, *January 9th*, 1869.

Col. B. P. Johnson, *Secretary N. Y. State Agricultural Society:*

Dear Sir—The "Galen Agricultural Society" (a town society) held its annual election at the society's room in our town hall, when and where Daniel Jenison was elected President for 1869; Matthew Mackie, Vice President; Seth Smith, Treasurer; Jas. Watson, Secretary.

Treasurer reported memberships (of $1.00) received	$74 00
Admissions at gate	68 94
	$142 94
Paid cash premiums and expenses	132 20
Balance on hand from fair of 1868	$10 74
Balance on hand from previous fair	23 04
Total on hand	$33 78

Our library is a good institution in our society, and your valuable Transactions did a worthy part in paying premiums to a people who highly appreciate them. Our fair, held on 16th September, was materially affected by unfavorable weather, but was a satisfactory success, and encouraged us to adopt a resolution to hold a two days' fair next autumn, and with the present awakened feelings we hope to excel any of our former efforts.

Most respectfully, &c.,

JOS. WATSON,
Secretary.

GOUVERNEUR.

Gouverneur, N. Y., *January 30th*, 1869.

The tenth annual exhibition of the Gouverneur Agricultural and Mechanical Society, was held on the society's grounds, September 16th, 17th and 18th, 1868. Never, since the organization of the society, has its annual exhibition given greater encouragement and satisfaction to visitors and exhibitors. The number of entries exceed those of last year, by fifty-eight, and it is a gratifying evidence of the growing popularity of the society, when its records show, as they now do, that the number of entries is increasing every year.

The season, in most respects, was favorable to agricultural pursuits, and the farmers have gathered a plentiful harvest and realized high prices for the products of the farm and dairy.

There is manifestly a desire on the part of many to make greater improvements, become better farmers, raise larger crops, drive nicer horses, and keep better stock.

It is evident this desire to excel belongs to the spirit of the age, and is greatly stimulated by the various agricultural societies of the country.

The benefits derived from our annual gatherings cannot be estimated in dollars and cents. Time alone can reveal the aggregate of happiness, the refinements of taste, the increase of mechanical skill, and the wealth produced by a better system of operative husbandry.

The exhibition in horses and cattle was never larger or better, including many thoroughbred animals from the best herds in northern New York.

In sheep, swine and poultry, there were fewer entries than in some other years; yet those on the grounds were all fine specimens of the classes to which they belonged, and would compare favorably with those exhibited at any of the county societies.

The mechanical department was well represented, and gave evidence of increased interest, including many skillfully wrought and really valuable labor-saving machines, both to the mechanic and the husbandman.

The show in grain and garden vegetables was never more creditable, and more than met the expectations of the officers of the society. The dry weather during the latter part of the season, doubtless diminished the yield, but added to the quality and excellence of the harvest.

There was a larger number of entries in butter than last year. The committee reported: "On the whole, an ordinary lot, very well manufactured but injured by the warm weather before and after being made."

The exhibition in cheese was good, showing an increased interest in the products of the dairy. Several factories were represented from the adjacent towns.

The ladies' department, including floral hall, was not quite equal to that of last year. The hall itself was beautifully decorated, and the articles in it were tastefully arranged.

The premiums offered on household products, needle and fancy work, are small in comparison with some other departments. Then the building in which this exhibition is held is not what it should be. In case of severe storms the chances are that irreparable damage may be done.

On the last day of the fair the annual address was delivered by the Hon. Calvin T. Hulburd, who held a large and appreciative audience in rapt attention to its close. He so ably treated of subjects indispensable to successful agriculture, that the society ought to obtain the address, if possible, for publication, and place it in the hands of every tiller of the soil who pays tribute at her gates.

All the premiums awarded have been paid, with the exception of four dollars donated to the society by I. D. Easton, and four dollars not called for.

Two hundred feet of cattle sheds have been built, at an expense of $248; also a speaker's stand, for $45, making the total expenditure for new buildings, $293.

Cash on hand at last report	$222 90
Received from all sources	2,203 87
	$2,426 77
Paid expenses for the year	1,949 81
Cash on hand	$476 96

W. H. WALLING,
Secretary and Treasurer.

HAMMOND.

Hon. B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

DEAR SIR—I herewith submit to you the eighth annual report of the Hammond Union Agricultural Society for 1868. The exhibition, September 30, October 1st and 2d, resulted in a complete success, the weather being fine, and the display of articles in general very satisfactory.

The show of cattle was large, and the animals were very fine, especially the milk cows, which were exhibited in a sweepstakes—any breed, any age; the judges being impressed that the whole line of them were hard to beat. Ayrshires and grades are the principal breeds in use here at present, with a few Durhams. Dairymen hereabouts decide that there are no thoroughbred cattle for dairy purposes so good as the natives or grades, consequently not much interest is taken in keeping up families of thoroughbred cattle.

The display of horses was, in regard to numbers and quality, far superior to anything ever before exhibited at this place. Matched horses, roadsters, fancy matched and farm horses were represented very largely, and merited extensive praise, while the younger class of horses were not inferior in point of numbers or quality.

The agricultural and mechanical departments were well filled, while the ladies came well up to the line of perfection in fancy articles and domestic fabrics.

The judges on butter and cheese awarded six special prizes on butter, and commended the whole display as deserving of great credit.

Some beautiful specimens of fruit were on exhibition, and the number of entries outstripped any former year. Grain and vegetables also ranked well in their place.

There were a very large number of trotting horses present, which participated in each day's sport, for which the citizens had provided a well-filled purse for the one leading in the contest. All passed off quietly and satisfactorily, and the element which has ever been working against the society is broken, and the dawn of prosperity is before us. The amount received was large enough to liquidate all expenses, cancel the old debt, and leave a surplus in the treasury.

The officers of the society are: George Backus, President; Irenus Franklin, Treasurer; C. A. Wooster, Secretary.

Very respectfully, yours,

C. A. WOOSTER.

HARPERSVILLE.

Report of the tenth annual fair of the Harpersville Union Agricultural Society, held on the grounds of the society, October 6 and 7, 1868. This has been the most successful fair ever held by the society. The exhibition in the stock department was extra, showing the influence which the society has upon this branch of agriculture. The display of fruit and vegetables was very fine. Floral hall was, as usual, well filled by the handiwork of the ladies of the society. The number of members has been increased.

The total receipts of the society for the year were $512.87. Expenditures as follows:

Premiums	$294 25
Printing	65 00
Incidental expenses	130 62

The society is out of debt, and has $23.09 in the hands of the treasurer. The society is in good standing, with the prospect of a prosperous future. The annual address was delivered by Clarke Hood, of Binghamton.

The annual meeting of the society was held at the hotel of L. Barnes, December 8th, 1868. The following officers were elected for the year 1869: President, Samuel G. Square; Secretary, Edward Harper, Harpersville; Treasurer, S. S. Doolittle, Nineveh.

EDWARD HARPER,
Secretary.

Harpersville, New York.

HESS ROAD.

Hon. B. P. Johnson, *Secretary N. Y. State Agricultural Society:*

Dear Sir—In this, my fifth annual report of the Hess Road Farmers' Club, I am happy to notice a growing interest in our business as farmers. We have been "hewers of wood and drawers of water" far too long; we have been content to grovel in the dirt, never once looking up or around us, to see that we were in the midst of nature, that we had a higher and nobler purpose, that we had minds that needed feeding as well as our bodies. We have gone on, year after year, mere machines, so tiring ourselves out that we could neither read or think, by plowing or sowing all that we could possibly urge our worn and jaded teams over, raising all we could and selling it for what we could get, thinking we were getting rich because we were

laying up a few dollars or were buying a few more acres; when, in fact, if we had taken into account the impoverishment of our fields, and the fact, that our yields were continually falling off, that from forty bushels and over of wheat we had got down to fifteen and less, we were growing poor, were exhausting both ourselves and our soils. But farmers are awakening to their true position and interests, they are taking more agricultural papers and reading more agricultural books, holding more meetings and comparing notes and discussing improved modes of culture and considering their interests; and are giving more time and thought to, not how to get over more acres, but how to make what they cultivate more productive. They are improving in their manner of thinking and investigation, comparing the value of different crops and different courses of rotation, thus trying to improve what acres they now have, rather than to add to their number. This is in the right direction; success to every agency that can help it along!

During the past year, our meetings have usually been very interesting and well attended. We have held them regularly every week except during the very warm weather and busy spell of midsummer. We have no lack of subjects germane to our calling. Very nearly one-half have been given to fruit culture, as that is a growing interest in this section, and justly too; as every acre in fruit well attended will yield an annual profit of $100. This lake shore region is becoming known for its fine apples and other fruits. A goodly number of evenings have been devoted to considering how we shall elevate ourselves, both mentally and morally, and better our condition as men and farmers. We are becoming more and more convinced that if *each one* possessed the aggregate amount of knowledge that all have on the various crops grown, and the various topics that concern us, our crops would be much more than doubled, our farms and our buildings, our fences and our stock, would look very different and much improved, and although we might not be able to ride in as nice carriages, or to live in as magnificent mansions, or to wear as fine clothes as those in other callings, we might very likely live just as happily, and enjoy life full as much as they, and go down to our graves with the satisfaction of knowing that we have left the world better than we found it, that our children instead of being left with worn out and impoverished fields, shall inherit those of full and increased fertility. To that end, we as a farmers' club, are laboring, and are willing to labor. Accept the thanks of the club for the many kind remembrances during the past year.

Chairman for six months, M. H. Jaques; Recording Secretary for year, Reuben F. Dutcher; Corresponding Secretary and Treasurer for year, J. S. Woodard.

Very truly yours,

J. S. WOODARD,

Secretary, H. R. F. C.

Hess Road, Niagara Co., *Jan.* 15*th*, 1869.

HIGHLAND.

Statement of the finances of the Highland Horticultural Society, Ulster county, N. Y.

Receipts for the year ending 1st November, 1868, less dues..	$190 93
Expenditures for the same period, premiums paid, &c.....	90 82
In hands of treasurer, 1st November, 1868.....	$100 11

C. W. ELTING,

Treasurer.

Dated *February* 20*th*, 1869.

LENOX.

Report of the Lenox Farmers' and Mechanics' Association, for 1868.

Secretary State Agricultural Society:

The eleventh annual fair of this association, was held at Canastota, on the grounds of the Park Association, September 30th, October 1st and 2d, and had promised to be one of the most successful ever held by the society. The first day was devoted to the making of entries, but the weather being very unpleasant, many who designed exhibiting were prevented from making entries on that day, and the committee ordered the books to be kept open for entries until 12 m. of the second day, but the weather was not sufficiently promising for the people to exhibit to the extent they had intended.

Yet the exhibition in the mechanical department was a superior one, as also was the show of vegetables. The display of stock was not as good as it should have been, but the condition of the weather was a reasonable excuse. The annual address was delivered on the third day of the fair, by the Hon. A. M. Clapp, of Buffalo, to a large and attentive audience, under the mammoth tent used by the society.

A copy of the address was asked for for publication, and has since been published and distributed among the members of the association.

The number of entries was 300; total amount of receipts $750.57; cash paid for premiums, $290; besides a large number of books and papers, including Transactions of the State Society, and American Institute. The other expenses were upwards of $450, leaving but a small balance in the treasury.

The officers of this association desire to express their gratitude to the State society, for the kind consideration shown by its members to the venerable secretary, Col. Johnson; may his long life of usefulness be crowned with a golden sunset.

Yours, &c.,

E. F. LEWIS,

Secretary of Lenox Farmers' Association.

LENOX, *March* 10*th*, 1869.

LITTLE FALLS FARMERS' CLUB.

LITTLE FALLS, *March* 17, 1869.

Corresponding Secretary N. Y. State Agricultural Society:

DEAR SIR—I send you to day my 12th annual report of the "Little Falls Club." The society was organized March 7th, 1857. During the twelve years of its operations, I have usually attended its meetings, taking minutes of the discussions and writing them out, with the hope of promoting the best interests of agriculture in this section of the State.

The following pages are from my notes of discussions during the past year. As a record of the experience of practical farmers in Herkimer, I trust they may prove of interest and value.

I have the honor to be, very truly yours, &c.,

X. A. WILLARD,

Secretary.

VALUE OF PEAT FOR FUEL—RENOVATING PEAT MEADOWS—USE OF PEAT AND MUCK AS FERTILIZERS—MANUFACTURING POUDRETTE FROM POULTRY DROPPINGS, &C., &C.

Upon the question of the value of peat for fuel and the renovation of peat meadows, Geo. M. Cleland, of Warren, was called upon to open the discussion. Mr. Cleland has a large peat deposit upon his farm, covering a number of acres, and he is trying to improve the

land and get it into shape for agricultural purposes. He gave it as his opinion that when coal could be purchased for $7 per ton, the use of peat would not be profitable. In other words, that the digging and preparing peat for market would not pay. In his own case he thought the peat land referred to could be more profitably employed for meadow than to dig out the peat for fuel. The land, however, must be properly drained. He had cut a ditch round sixty acres of this peat deposit and as the water was carried off the earth settled down about two feet.

Two samples of this peat had been analyzed. The deposit from one bed gave thirty per cent of ash, and that from another about nine per cent. of ash. He attributed the large per centage of ash in these specimens to a quantity of sand which had been carried on to the land by reason of its having been overflowed. He had applied this deposit to the adjoining fields for the purpose of increasing their fertility, and with the most marked effect. He believed that peat could be used successfully as a fertilizer for crops.

Mr. Dorr, of Little Falls, spoke of the excellent result which he had seen from applying muck and peat to loamy soils. Very large crops were grown on account of such application.

Mr. Whitman gave a description of a very useful contrivance for the hen-roost to catch the droppings of poultry. It consisted of an inclined plane arranged so that with the use of muck and plaster the droppings may be easily manufactured into poudrette.

Mr. Stevens said he had experimented with poudrette made from hen manure, leached ashes and plaster. The application was made upon the corn crop, and with no appreciable difference in the crop from another piece where plaster alone was applied.

Soaking Seed Corn in Copperas Water to Protect against Wire Worm—The Corn Grub—Crows Pulling Corn—Feeding Copperas to Cows, for Horn Ail—Facts in Regard to its Improving the Health of Stock—Remedies for Lice on Cattle—The Farmer's Club, Herkimer County, on Patent Rights—Swindlers Denounced—The way in which People are Humbugged—Facts and Suggestions Interesting to Farmers, &c.

Mr. Cole, of Fairfield, strongly recommended the soaking of seed corn in copperas water previous to planting. It was a perfect protection against the wire worm, besides the copperas acted as a fertilizer or stimulant, inducing a vigorous growth of the young plants.

It was no protection against the grub or corn worm, nor did it prevent crows from pulling corn as had been claimed by some. His usual practice was to dissolve the copperas in boiling water, adding immediately the seed corn and allowing it to soak, say two or three hours. He was accustomed to take the seed, while being steeped, into the field at the time of planting.

Hon. Harris Lewis, of Schuyler, said he had found corn soaked in copperas water a protection against crows. The copperas did not prevent the grub cutting off the corn as it came up. The grub was a tough customer to deal with; had applied lime and ashes to the corn hills, and the grub made its way through it without being the least affected thereby, and then cut off the plants.

Giving Copperas to Cows for Horn Ail.

Mr. Cole said he had found powdered copperas an excellent tonic for cows that were ailing. It was a capital remedy for animals affected with horn ail; had used it quite extensively in his herd, the usual dose being a teaspoonful given every other morning for several days. He spoke of a recent case where a cow was very sick and was like to die, which had been cured by giving copperas as above indicated.

Mr. Willard said that preparations of iron were in common use among medical men for giving tone and strength to the system. Some veterinarians had prescribed, in their practice, copperas (sulphate of iron) both for horses and cows as a promoter of condition or for strengthening and invigorating the system where animals were in low flesh or had been weakened by disease. Some had objected to the use of copperas as injurious to the stomach and teeth. Could not say whether there was anything in this objection. He reminded the club that sulphate of iron in connection with gentian root was recommended by Professor McClure, of Philadelphia, for the trouble which has been afflicting our herds for several years past. The theory of Professor McClure was that there was a general debility of the system among cows liable to this trouble, that the iron and gentian root was a powerful tonic, adding richness to the blood, strengthening the mucous surfaces and imparting health and strength to the whole system. Doubtless sulphate of iron given to cows that were debilitated or in a weakened condition, might as Mr. Cole remarked, operate as a tonic and give strength to the system. He was not able to say from any experience whether the objection referred to concerning its bad effect

on the teeth or stomach was valid or otherwise. Had administered sulphate of iron to cows in his own dairy and had not observed any bad effect from its use. On the contrary he thought its administration had been beneficial. Questions of this kind however belonged rather to medical men than to the ordinary farmer. The latter would not be apt to notice the bad effects referred to unless they made their appearance immediately or soon after the use of the medicine.

Tobacco Smoke for Lice.

To the question as to some remedy for destroying lice on cattle, Mr. Whitman recommended tobacco smoke as simple, easily applied, and effective. It had the merit of not injuring the animal, which could not be said of some other remedies he had heard recommended. He described the apparatus which he used for this purpose. It was of tin, something like an old fashioned sausage stuffer. The tobacco was placed in the large end, and there was a perforated cover to hold it in place. The tobacco being fired, by applying the mouth to the small end of the apparatus or tube the smoke could be blown into the hair, filling it completely. The lice were unable to live under this treatment. He thought the same result would be effective if it was practicable to drive the cattle to some of our modern saloons, reeking with tobacco smoke and whisky. In that case the lice would get a double dose, and be killed off very rapidly. Mr. Cole, of Fairfield, uses plaster (powdered gypsum) for killing lice on calves. The plaster is dusted into the hair and had always proved effective.

Mr. Willard spoke of a preparation of carbolic acid as very destructive to all insect life, while it was harmless to persons and animals. In England this material is coming largely into use for sheep-dips.

Patent Rights, and the way Farmers are Humbugged.

The regular question now before the club being in order, viz.: "Patent rights, and the mode of introducing them to the public," Mr. Whitman was called upon to open the discussion. He commenced by referring to a recent report emanating from the patent office, in which a very large number of new patents had been entered and registered. As he did not have the statement with him, he could not give the precise number, but he thought it was something like 2,000 for two months. He was inclined to think that the patent office department is becoming very careless about examining models and new inventions. It had come to such a pass that almost any-

thing could be patented if the patentee was willing to pay liberally for it, no matter whether it had any utility or not, or whether it covered ground occupied by former inventions patented. There is so much looseness in these matters that the country is perfectly flooded with patents of no utility to the public. Men go about hawking these worthless inventions, and a great many farmers and others are swindled out of their money. The man who gets up a patent, he thought, is to be pitied; if it is useful, some one is trying to get it away from him. He has to make a hard fight before he can get it fairly introduced to the public; and generally the inventor does not obtain the remuneration expected.

There is a class of men who manage by "hook or crook" to get hold of everything that they think can be made to sell, and if it is too worthless to sell on its own merits, these men manage in some way to force it forward by gulling the community. In this way honest persons are deceived and imposed upon. It is the class of men who peddle worthless patent rights that this question before the club to-day is particularly after. It is to warn farmers against them, to caution them against being swindled by false prospects, magnified so that they appear to be real. He could name communities that had made a loss of tens of thousands of dollars. Some of the parties humbugged can afford to lose their money for dear bought experience. Others are poor and can ill afford to see their hard earnings thrown away in this manner. The individual rights peddled through the country are too numerous to mention, and it would be an interesting exhibit, could all the various schemes and inducements put forth be set before the public. He spoke of a certain sulky rake that had been hawked through the country, and compared it with "a big shave." The model only was shown. Men were induced to give their notes for stock in this concern, because there was a warrantee on the back of the note to the effect that no money on the note was to be paid unless a considerable sum should be realized out of said stock. The note and warrantee were on separate pieces of paper, the edges only pasted together so as to be easily detached. The warrantee was detached and the note sold and had to be paid.

Then there was the lightning-rod operator, and the churn vender, both great swindles.

There were a great many men going about selling rights or inventions that they knew to be worthless. The most successful operators sell their rights to clubs. They go to a man who has influence and

ask him to lend his name and note; he is not to be called upon for any money, and they pay him well to act as a "stool pigeon." Other men are thus drawn in under the impression that it is a paying affair which is going to net them a good deal of money.

Mr. Whitman then gave his experience. He had been prevailed upon to invest in a sub-soil attachment. The operators came round showing him the names of a number of substantial men in the town who had taken stock in this concern. Only one more name was needed to make up the requisite amount, and the operator was in a hurry to leave for other parts and on this account would sell him the stock cheaper. He purchased, and found the sub-soil attachment a dead letter; nothing came of it, and the stockholders felt ashamed of the affair and kept quiet. He spoke of a man who had assured him that $100,000 had been taken out of one town for this attachment, and that there were not ten attachments in use in the State. Mr. W. said he liked the remarks made by Gen. Patrick, at the annual meeting of the State Society, on this subject. The speaker said he did not complain of people getting patent rights for real improvements and useful implements, but against those who sell what they know to be worthless.

Hon. Josiah Shull, of Mohawk, said he had had some experience during the past few days that had taught him a lesson. By some means, he hardly knew how, he had been induced to purchase stock in a hay-loader patent. He described the machine, which consisted of a crane, swinging out from the wagon, on which the fork is operated by a horse and rope, raising the hay from the cock and swinging it back on the wagon. He said there was no defect in the principle, but after he began to think seriously of it, the question occurred whether, after all, there was anything to be gained. Looking the matter all over, he found there was no saving of labor between the machine and pitching by hand, and hence, he did not consider the machine of any account. He had become a stock-holder in the company, but as to the machine, he would not give four cents for it for any practical use. He had been induced to invest in this stock, without fully considering its value, from seeing some of our best farmers' names on the roll, such men as Ezekiel Spencer, president Herkimer County Agricultural Society; Mr. Countryman, Mr. Eyseman and others. After looking over the matter in its true light, he went to the vendor of the patent and bought his note back for forty dollars, but the man would not erase his [Shull's] name from the books, although urgently requested to do so.

Mr. Whitman thought that this club could not afford to recommend any machine or patent right until after fully testing its practical usefulness. He said when we as a club recommend an article it should be a guarantee to the public that it is useful and a benefit to the community.

Mr. Lewis offered a resolution embodying this sentiment, which was for the present laid on the table. Mr. Willard spoke of the rapid march of invention and the benefit derived by farmers from labor saving implements. Bad men were found in every profession and calling in life. It was well to guard the public against swindlers and unprincipled men, but in doing so we should be careful not to cast suspicion upon those things that are really useful and thus prevent their introduction. One great drawback to American farming was the high cost of labor. If we can apply machinery to the farm so as to save or cheapen labor it was a grand desideratum. We can not go back again to the scythe and fork for cutting and curing grass, but because we have excellent machines for mowing and spreading grass, and so through various departments of farm work, we must not conclude that these machines have been brought to perfection. Improvements are constantly being made, and some are so great that the machine that was regarded almost perfect five or eight years ago, it may not now be good economy to use. If one machine will do better work than another and accomplish so much more in a day as to make a saving in the cost of labor of one or two men's work, it will be often better to purchase the new and throw the old aside, because the saving of $5 a day, when there is much work to be done, will pay for the usual run of machines the first season. For his part he was glad to see inventors active, and believed it good policy to stimulate this class in their efforts to bring out useful inventions. He said no doubt farmers and others were often imposed upon, but if farmers would read the papers and take pains to inform themselves they would not be so easily deceived. We have had implement trials conducted by the New York State Agricultural Society, where the most competent men in the land were employed to decide upon the merits of the various machines—mowers, reapers, rakes, plows, drags, cultivators, and in fact all classes of farm machines. Elaborate reports had been made of these trials, and were available to every farmer who cares to examine them. If a man wants the best implement he ought to be willing to inquire into its merits from disinterested parties who are competent to make up an opinion and have passed upon it.

To-day the New England Agricultural Society are holding a trial of plows similar to that of our own State Society at Utica last year.

It was well to discuss these questions before farmers' clubs, and he thought it a duty of these clubs to make a trial of new machines. If hawkers come about asking farmers to invest in stock for patent rights, they should be referred to the farmers' club in their town or county; compel the operator to come before these bodies and show his hand, and let there be a rigid examination of his machine.

Hon. Wm. I. Skinner said he was in favor of improvement, and thought no impediment should be thrown in the way of useful and worthy inventions. He favored the idea of a rigid examination and trial of all implements brought before the club, by a competent committee. The committee should report to the club, and the club should not pass upon the merits of a machine, in the way of recommending it, unless it should prove beyond all doubt, worthy and useful. No farmer should be deceived by any recommendation coming from *this club.*

Hon. Harris Lewis was in favor of encouraging inventions of practical utility, and thought the club should give machines and implements a fair trial. As to the hay loader, referred to at the early part of the discussion, he pronounced it one of the greatest humbugs in the country or age. The model had been presented to him, and it appeared to work very well, but a man could not work a full sized machine in that way and pitch as much hay in a day as a cow could eat. He had offered the operator all the hay he could pitch in that way with his machine, and as hay was worth $20 per ton, he thought the offer a fair one.

Bent's Milk Agitator.

A committee consisting of A. L. Johnson, of Schuyler, and Geo. M. Cleland, of Warren, were appointed at a former meeting to report on Bent's milk agitator, exhibited by J. B. Harris, of Antwerp, Jefferson county. The committee reported to the club that they believe it to be very useful to those engaged in making cheese, that it moves all the milk in a vat completely and carefully. That the construction is simple and not liable to get out of order. It is easily regulated and there is no rubbing or raking of the agitator on the bottom of the vat, but it always floats at the proper depth. One of the committee adds in the report that he had seen the agitator in operation at the Frankfort factory, and that it gives all the motion

necessary to cool the milk or prevent the cream from rising. After giving a description of its operation, the committee conclude by recommending it to the favorable notice of private dairies and factories.

Hon. Josiah Shull, on the part of the committee, for testing Randall's seed sower and sulky harrow, stated that the committee would test this machine in September next, at the time of sowing wheat.

The meeting of the club was not so largely attended as usual, but the discussion was animated and interesting.

PREPARING THE GROUND FOR CORN—MANURING, PLANTING AND CULTURE OF THE CROP—PROTECTING THE YOUNG PLANTS AGAINST CROWS—AN EXCELLENT COMPOST—HOW LARGE CROPS ARE RAISED, &c., &c.

The subject of corn planting was before the farmers' club of Herkimer county, on the 24th of April. Mr. Whitman remarked that he had more trouble to get his corn well planted than with any other crop. His practice is to manure in the hill, covering the manure with earth before planting the corn. He took great care in planting that no stones or chips should cover the seed, using nothing but well pulverized earth; prefers the manure well rotted and fine before using it in the hill.

Hon. Harris Lewis referred to the practice of soaking the seed in a solution of copperas; regards copperas used in this way as an excellent fertilizer for the young plants, besides preventing crows from pulling the corn.

Mr. X. A. Willard remarked that one of the best preventives against crows pulling corn that he ever used was sulphur. We take flour of sulphur and mix it with grease, then smear rags with the mixture, and hang upon poles or sticks in various parts of the field. The crow has a very keen scent, and sulphur is either disagreeable to his olfactories or it awakens fears that some trap is laid for his destruction. Whatever the cause may be, he avoids fields thus treated. Crows are sometimes very troublesome in cornfields, especially if the plantation is located near or adjoining wood lands. We have had large patches of corn pulled by crows notwithstanding precaution had been taken to string the field with twine and erect figures or "scarecrows." On replanting, the sulphur was tried, and with perfect success. We know of no means so cheap and at the same time so effectual and easy of adoption as sulphur used in the way suggested.

Some people talk about the crow as a very much abused bird, that he does not pull corn for the purpose of feeding upon it, or for mischief, but that he is in search of the corn grub, attacking only those hills infested with this pest; that he, therefore, is a benefit to the farmer, ridding the ground from worms that would prove quite as prejudicial to the crop, and even more so than the hills destroyed in scratching out the grub. There is much truth in the statement, and we are not disposed to make such a wholesale onslaught upon the crow as farmers generally are disposed to do. But while we are willing to admit that the crow destroys a vast number of insects, mice, &c., we are well satisfied that he will destroy corn also. We have no doubt that a good deal of corn pulling by these birds is done merely in the spirit of imitation. A flock of crows alight upon a cornfield, some of the birds in the first instance fall upon the hills infested with worms, while the others, seeing their companions at work, fall to and do likewise. We have frequently watched crows at work in cornfields, and their operations were similar to what we have described.

In regard to manuring corn in the hill, Mr. Whitman said caution should be had in applying concentrated manures directly upon the seed; had used hen manure and ashes, and when the roots of the corn came in contact with the manure they were killed, and the crop much injured.

Mr. Wilson referred to the experience of a Mr. Elward, who was accustomed to use a mixture of salt, lime, ashes and plaster, equal quantities of each, as a top dressing for corn, and with decided success, the crop was very excellent. That gypsum could be used with good results upon corn was proved from applying it to hills separately, and it always showed the effects.

Mr. Lewis recommended a compost, which, he said, was an excellent fertilizer for corn, to be applied in the hill. It consisted of hen manure and muck, mixed together in the proportion of one bushel of the former to four of the latter. If the hen droppings are in a moist state, the mixture should be used immediately after composting, as decomposition then is more active, and the ammonia is set free and liable to escape. He deprecated the mixture of ashes and lime with any kind of animal manures, as the ammonia was set free, and the manure in consequence very much depreciated. Ashes and lime may be advantageously mixed with muck, making a good fertilizer. Lime or ashes applied as a top dressing on muck land, had been used with

the best results. Plaster could be used to good purpose with manures, as its effect was to retain and fix the ammonia.

In regard to the increased product of the crop by using hen manure and muck as above recommended, Mr. Lewis said he believed the increase alone of the crop would be sufficient to keep his hens in food during the year, that is the droppings from each hen during the year would produce above an ordinary crop, all the food she would consume.

Mr. Whitman thought that all barn yard manure should be incorporated with the soil in order to be of the greatest benefit.

Mr. Lewis would prefer sod land for corn, the land to be manured after plowing. He would plow well and thoroughly pulverize before planting, the manure to be well incorporated with the soil. In planting corn the hills should be four feet apart each way and four grains to a hill; the grains should not be scattered but near together. He had raised at the rate of ninety bushels to the acre by applying muck and hen manure.

There are various plans recommended for growing large crops of corn, but the great secret, if there be a secret in the matter, is fertile land and abundance of manure and clean culture. In our own experience, our largest crops have been grown on sod, manured with green manure in the spring and then plowed. Upon our Utica slate lands, by manuring as above, at the rate of fifteen cart loads per acre, in an average good year we have grown more than ninety bushels of corn to the acre. Our practice has been to turn over old meadows that have lain ten or a dozen years in grass, and we scarcely ever fail to get a large yield when treating the land with manure as above indicated. The largest crop we ever grew upon sod was where the land was subsoiled at the time of plowing in spring, just before planting.

Cutting and Curing the Grass Crop—The Value of Early Cut Grass for Milch Cows, and for making Beef—Mowing Grass when the dew is off Recommended—Storing Hay in the Mow Green—Timothy best for Horses—Experiments in Feeding Stock, &c., &c.

The use of the mowing machine, the hay tedder, and horse fork has done away with a large share of the hard work and tediousness of securing the hay crop. These machines by the expedition in which the haying may be forwarded, not only save money and man-

ual labor, but enable the farmer to get his crops into the barn in much better condition than in old times. Machinery is an opposing force to the elements. With machinery it is possible even in lowry, catching weather, to make hay and secure it in good order. It is true hay can not be made when it rains, but advantage may be taken of short periods of sunny weather to keep the hay tedder in motion, and thus the crop secured which could not well be done under the old system. The use of machines has induced an earlier cutting of grass, which of itself must have added greatly to the wealth of the country.

The farmers' club of Herkimer county met on Friday, June 12th, to consider the question of the best time for cutting grass and best method of curing or making it into hay.

Harris Lewis, of Frankfort, said he commenced the practice seven years ago of cutting grass early, sufficient to keep his milch cows in feed from the time they "came in" up to the time of turning to grass. The term, early cutting, is understood differently by different persons. Some persons would call grass cut early if it was cut at the time of its maturity. What he meant by early cut grass, was to cut it at a period before half of the timothy or clover heads were in blossom. Has been his practice, when the weather would permit, and the grass forward enough, to cut and have cured and in the barn, by the 1st of July, enough grass for the spring feed of dairy stock.

Previous to the time mentioned, seven years ago, it was his practice to let grass stand until it had matured before commencing to cut. The consequence was that that portion which was cut last was nearly worthless. Under this system it was his practice, and he found it necessary, to feed stock grain during the spring months in connection with hay. Since cutting his grass early, had found this early cut hay, if properly cured, to be all that his milch cows needed in spring to keep them in good condition, requiring neither grain nor roots. Milch cows fed in spring upon this early cut hay, give milk nearly of equal value, both as to quantity and quality, with that yielded upon grass. The droppings had all the appearance of those of grass fed cows, except that the latter contained more water. As to the comparative quantity of cream in the milk, no difference could be detected between that made from the hay and that from the grass. These experiments fully convinced him that for feeding milch cows grass should be cut early. Had made a careful estimate of the loss on hay made from grass standing until it was over-ripe. The loss would run from one dollar to five dollars per ton.

He believed the early cut grass contained the elements for making beef rapidly, as well as producing milk abundantly. Was of the opinion that grass should be cut as soon as it lodges. Believes that by letting it stand it loses in quality more than it gains in growth. Then there was another point of vast importance to the farmer quite too often overlooked; the effect of late cutting in exhausting meadow lands, and running out the grass. He said the piece of meadow from which he had taken his early cut grass had produced fourteen crops in seven years, or at the rate of four tons annually per acre; and yet the land is in as good heart now as it ever was, and the crop this year promises to be as large as any previously cut.

To the inquiry from Mr. Brown, of Fairfield, in regard to the quantity of manures, if any, which had been applied to the soil, Mr. Lewis replied that the meadow in question had been top-dressed four times during the seven years. The top-dressings each time consisted of solid and liquid excrement from his stock, at the rate, say, of fifteen cords to the acre.

In reference to the nutritive value of over-ripe grass, he believed that timothy, if allowed to stand until the seed is perfected, is of no more value than oaten straw. The stalks are a mere mass of woody fibre; the seed of course contained nutriment, but it could not be retained, since, in cutting and gathering, the larger share shelled out and was distributed over the ground. Of all the grasses, he had found red top to be least injured by standing until it was over-ripe.

He would not mow grass until the dew was off. In settled weather hay may be obtained cheaper and of better quality if the mowing is done in the afternoon. If the sun comes out hot, and the grass is much wilted, would use the tedder the same afternoon and ted the grass before the dew falls. Then, if the weather promised to be fair, leave it till the dew is off next morning, when it should be turned with the tedder, and in the afternoon raked and put in the barn; or, if not dry enough, then cock it. But if the weather on the first day appears unsettled, the hay, after being tedded out, should be raked and cocked. As a matter of preference, irrespective of cost, would choose that the hay stand over night in cocks; but when labor is scarce and dear, the plan suggested is, on the whole, best. He does not believe in over-drying hay in the field. There is much loss from this source. In storing early cut hay, it is often put in the barn quite green. Had saved all his corn stalks grown last year for the purpose of mingling with early cut hay in the mow. His method is

to make a layer of hay two feet deep in the mow, and then throw over a layer of stalks in the bundle, and so alternately until the mow is filled. Straw answers the same purpose as the stalks. Never had any hay spoil on the outside of the mow, and have usually stored it much greener than commonly practiced by his neighbors. Four years ago, the day he finished haying was cloudy, and the hay out in the field did not dry any. Commenced drawing it very green; put twelve loads into the mow together. Two months after went out and examined the mow, and found toad stools growing on top of the hay. When the hay come to be used, after throwing off six inches from the top, found the balance of a bright green color, and in beautiful condition. Never had any better hay than that lot; and this satisfied him that hay may be put in the mow very green if it is stowed away in considerable quantities in a body or together. The moisture rises to the top, and does no injury except on the surface.

Mr. Roswell Brown, of Fairfield, agreed with Mr. L. in regard to the manner in which the mow is affected by moisture. He would close all the doors, and not allow a circulation of air from this source through the barn.

Mr. Lewis said there was not so much damage resulting from early cut hay getting wet in the field as with late cuttings. He had never tried liming hay in the mow. Lime absorbs a great amount of moisture, and this, he supposed, was the principal benefit, if any, from the use of liming hay in the mow. He was decidedly opposed to salting hay in the mow, because the salt will absorb moisture from the atmosphere in damp weather, and again, when you come to feed, your stock is forced to eat more salt than they need.

Mr. Brown believed there was advantage in using salt in the mow, especially if hay was stored away green. The effect of the salt was to arrest active fermentation and heating. There was less weight in early cut grass than there would be if the grass stood longer and became more matured. It was a question whether the gain in nutrition would equal the loss in weight. For feeding horses, he would have timothy stand until the seed is perfected. Not so long as to have the seed shell out, but the grass should be much more mature than the stage indicated by Mr. Lewis. For milch cows he believed the early cut grass was best, and he was confident it would yield most milk. Had made a great many experiments in feeding horses, and found that timothy cut when pretty well matured, as above described, was altogether better for the horse, both as to health and

endurance. Horses fed on this character of hay alone, would do nearly as well as if they were fed on early cut hay and grained. Considers such hay for horses worth double early cut grass. In regard to the best method of curing hay, the expense must always be taken into account. He would cut in the afternoon, when dry, and if sufficiently wilted on top, would turn it before the dew began to fall in the evening. Would allow it to lie until the dew is off the next day, and towards noon turn it over. Then let it lie as long in the afternoon as is possible, so that it may be raked before dew begins to fall. Rake into winrows, and leave over night, if the weather promises to be good, otherwise cock, and next day draw in. When in the winrow, it dries without wasting, and the labor of cocking is avoided. If the upper part or layer of grass as it lies in the field is dry, and the under part green, it may be often cured quite rapidly by raking. Thinks, in former years, his practice was to dry hay too much. The dust in hay, caused by heating in the mow, is not injurious to horned cattle, but quite the reverse for horses. Believes timothy the best hay for horses; would not feed clover to horses on any account. His practice is to select clear timothy, whenever it can be found in meadows during haying, and draw such to the horse barn. Prefers a rack to manger, for feeding horses; would have a manger under the rack to catch the hay and prevent waste. There should be an opening back of the rack, so that the dust and dirt may fall to the floor, when it is drawn from under the manger, and used for bedding. No good horseman will allow a horse to eat from a manger or box where hay accumulates from day to day. Such places soon become foul, and are injurious to the health of the horse, inducing heaves and other disorders.

In regard to turning horses to grass in the spring, would let them take grass gradually. Turn out to pasture at first for a few hours, and at night stable the animals. This course may be continued for a week, and then turn to pasture altogether. It is very prejudicial to the health of a horse to pasture him a few days and then put him a few days upon hay, and so alternately.

Mr. Kane, of Schuyler, said he preferred to cut hay when the dew is off. If the weather is fine would let it wilt, and in the afternoon rake and cock. The next day if weather continues good, shake out cocks, say about 9 A. M., and if not fit to go to the barn in the afternoon rake and cock again. Continue this operation from day to day until ready for the mow. Mr. Kane said it was more labor to turn hay with the fork, by hand, than to rake and cock. Farmers could

hardly afford, in these times of high prices for labor, to set men turning hay with the fork.

The practice of other members of the club present at this meeting does not differ materially from that detailed above. The meeting was not as large as usual, but nevertheless was one of considerable interest.

SUCCESSFUL TRIAL OF IMPLEMENTS BY THE FARMERS' CLUB, HERKIMER CO.—THE ATTENDANCE OF FARMERS AND OTHERS—CONDITION OF THE GROUNDS—THE IMPLEMENTS TESTED AND MANNER OF CONDUCTING THE TRIAL—A MORE THOROUGH AND SATISFACTORY TEST TO FARMERS THAN WAS HAD AT THE STATE TRIAL—SUGGESTIONS IN REGARD TO IMPLEMENT TRIALS AND THE BENEFITS RESULTING WHEN PROPERLY CONDUCTED, &c., &c.

One of the most practical and successful implement trials came off at Herkimer, on Friday, June 5, under the auspices of the Farmers' Club of Little Falls.

Judge Graves and Sheriff Weatherwax, the committee appointed by the club to select grounds, &c., and have the general superintendence of the trial, performed their duties admirably. Judge Graves came out with his farmer boots on, and, in turn, tested each implement with his own hands, and some one said he came off the grounds with a blister or two started upon his palms; the reward, or at least the evidence of toil. But, however that may be, we are able to vouch for his enthusiasm and apparent delight in being carried back to old times, when his pleasure, as well as profit, was to do work upon the farm. In this age of pretension, of gaudy tinsel and sham, it argues well that the lawyer can leave his desk and briefs, and turn his influence heartily into the cause of improved agriculture, and thus contribute to the advancement of his race.

Perhaps a word ought to be said here in reference to the object of this trial by the club. It was inaugurated solely for the benefit of farmers, without the least regard to any interest or wish of manufacturers or inventors of implements. The club, in this movement, was actuated by a similar motive that induced its investigations of the cattle disease of the central counties, investigations in which considerable time and money were spent by the club for the public benefit; and when the public shall come to appreciate properly the amount of labor contributed in various ways, without selfish aims or money

recompense, to the club as a body, or to members individually, we believe full credit will be given to the institution, in having accomplished as much real substantial good as any organization of the kind in this country.

When the New York State Agricultural Society had its implement trial, at Utica, last year, it failed to test at least one class of implements (cultivators), in growing crops. What the practical farmer wants is to have the various implements brought together and worked in the crops. It is not sufficient that the work of testing be entrusted to a dozen men, good judges and otherwise, as the case happens to be, but a hundred or more farmers should handle the implements, comparing the merits of each with others, at the same time and upon the same field. They will thus be enabled to make up a tolerable estimate of each. A machine may do good work in one kind of soil, which is not adapted to another kind. Some machines that do good execution are unwieldly or difficult of management. There are a great many things of this character about machines which a practical farmer will readily discover, but which persons of the "gentleman farmer" stripe, who are accustomed to make up their opinion by *seeing* the work done, *not doing it*, may not discover. We have long since ceased to regard as infallible the agricultural recommendations of that class of men who are above holding the plow, or who are inexperienced in the practice of agriculture. We have been grossly deceived in our time by accepting the opinions of clever men, who lacked practical experience in farming. Life is quite too short to be frittered away in making experiments in the wrong direction, or in exploding wild theories. We do not object to men throwing away money at farming if they can afford it and take pleasure in so doing, but the generality of farmers who do not farm for the mere "fun of the thing," but to lay up something at the year's end out of their business, do not care to be led astray by accepting unsound advice.

The Herkimer County Farmers' Club seeks to probe the truth of things, and how far they have succeeded in this undertaking, our reports of discussions, from time to time, must bear witness. We do not claim that the opinions of members, as expressed in the discussions, are always sound or are unexceptionable, but they are honest and are usually a record of practical experience.

When the subject of implements for cultivating crops was up for discussion, many of the members thought the only proper way to discuss the topic, so as to be of the most advantage, was to have the

machines in actual working, to invite farmers to come together and hold the discussion on the field, machine in hand. Not far from one hundred farmers and others were present at the trial on Friday. The grounds selected were upon the Bellinger flats, at the upper end of the village. It was a piece of sod which had been turned over and planted to potatoes. The land was in tolerable condition, except being filled with quack, which, together with unrotted sod, made it a severe test for the implements. The potato plants were small and the hills rather near together. Not far from this large field in potatoes was another upon which corn had been grown last year. It had not been plowed since the removal of the crop last fall, and was quite hard and tenacious in character. This ground was appropriated to plows, harrows and two-horse cultivators.

We got upon the place of trial about one o'clock P. M., and found the machines ready for operation. The Remington Agricultural Works, Ilion, had the following: Johnson's cultivator, Sayre's horse hoe, a plain horse hoe, several shovel plows, double and single, and a one-horse plow.

Fords & Howe, of Oneonta, Otsego county, were represented by Mr. S. S. Whitman, of little Falls, with their excelsior cultivator, a two-horse machine on wheels, and their one-horse thill cultivator. Mr. Whitman also showed the horse hoe of Alden & Co., Auburn.

J. E. Morgan, of Deerfield, in this county was present with two of his improved harrows.

Thomas Varley, of Mohawk, Herkimer county, had upon the grounds Spink's self-cleaning coulter.

These, with some other cultivators of common make, and a plow or two, comprised the leading machines for working the ground. Mr. A. W. Kellogg, of Pittsfield, Massachusetts, was present, showing Sherman's monitor corn sheller, and made a much more favorable exhibition than in the trial of the week previous which we noticed. So far as we could judge the machine created a favorable impression.

There was also on exhibition two or three new churns, a horse fork, &c., &c.

Now what was desired in this trial of cultivating crops was a machine that could be easily handled to work up to the rows; that would cut out the weeds and quack; that would pulverize the soil to the proper depth, and leave it behind the machine in the best condition for the men who followed with hand hoes. It is not our purpose to

go into a minute description of the several machines and their merits, but simply to refer to them in a general way, giving a fair expression of the opinion of the majority of those present, who, with ourselves, worked the implements upon the grounds.

The double shovel plow of the Remingtons proved a complete failure. It could not be guided upon the grounds selected, every little obstruction throwing the machine either to one side or the other, cutting out the hills. The agent of the agricultural works stated that this style of plow was made for the prairie soil of the west, and was not intended for the great majority of lands in central New York. The Johnson cultivator proved quite a favorite with all present; it did good work and was easily managed. The peculiar form of the teeth, and their arrangement upon the bars is such that they enter the ground with great ease, and cut out everything before them. Sayres' cultivator is a good machine, and may possibly do equally as good execution. When first put in operation the teeth were not properly set. It was not tested as fully as the other machines, but it gave a favorable impression with those who handled it, of its capacity to do good work.

Alden's horse hoe fully sustained its high reputation. It is a thill machine, with sharp steel shovels, very light and easily handled. It shaves the quack roots without mercy, and leaves the ground in high tilth.

The one horse thill cultivator of Fords & Howe, proved a great surprise to every one on the ground. It did its work in the most perfect manner, and its simple arrangement for regulating depth is an important feature. The teeth are diamond shaped, and there is a wheel in front, and the whole construction is such that it is of easy draft, and quite easy of management for the operator. Another noticeable feature of this machine is, that while the ground is thoroughly pulverized at any required depth, it does not pile up the earth on the plants. We think the universal expression of those present was that this is a capital invention.

In passing we may remark that the somewhat recent application of thills to cultivators and horse-hoes must be regarded as a decided improvement. With thills the machines are kept steadier, while at the end of the row the labor of lifting or throwing the implement into the next row is not half so great as the old style cultivators, while there is much less danger also of cutting up hills from the sudden starting of the horse.

Many of the old farmers present we noticed had a great many good words for the shovel plow, and they handled them on the ground with evident satisfaction; and well they might, for the agricultural works of Ilion get up a light, sharp, graceful and efficient implement, "quite a dandy," so to speak, compared with the coarse, heavy, dull, old fashioned shovel plow, common among farmers ten years ago.

About three o'clock the trial of the plows, the two-horse cultivator and harrows, came next on the lower field. No better place could have been selected for testing the capacity of these implements for effective work. The ground was hard, marked up with the old corn hills, and filled with weeds and quack. Morgan started his forty tooth harrow across the field; and as it raked through, digging up the soil, the weeds and the quack, there was a general murmur of applause at its fine execution. We heard but one expression, and that of unqualified praise, for this splendid implement.

Fords & Howe's excelsior cultivator was now started, and was another favorable surprise to all present. Some farmers said they could not have believed any machine of this character capable of doing such nice work, especially on such a soil, had they not seen it with their own eyes. It stood the test before a crowd of practical farmers; every man of whom looked sharp to discover a flaw in its working.

We can notice but one more implement in this trial, and that is Spink's self-cleaning coulter.

Mr. Varley, of Mohawk, the manufacturer of this coulter, put it on the worst part of the land, full of weeds and stubble, and where a coulter would have clogged at every rod. It did its work perfectly; the weeds and stubble, from the peculiar construction of the coulter, being forced up along the edge of the coulter, conveyed to the left over the top of the blade, where they lose their balance and fall to the ground, and are covered by the succeeding furrow.

This coulter we regard as a most valuable improvement, and should be in the hands of every farmer.

We have referred, from time to time, to the benefits growing out of these implement trials. If they could be inaugurated by every farmer's club and county agricultural society in the State, and properly conducted, great good to the cause of improved farming would be the result. To make them subserve the right purpose, every farmer, within a reasonable distance of the place of such trials, should be present and assist in the testing of implements. In this way the views of many persons are reached, not only in regard to the merits

of implements, but the manner of tilling the soil and the culture of crops. Such meetings would stimulate farmers to improved methods of farming; and some, at least, would learn from a day's lesson what in the usual course of their farming it takes years to acquire.

We do not believe in implement trials, "cut and dried" to suit the views of parties interested in the sale of implements. It is a question of some weight, whether agricultural societies should give medals endorsing this or that machine as the best, on the recommendation of three men under the name of judges. If the judges are thoroughly competent and are strictly honest, making up their awards without partiality or outside influence, it is all right; but how often is it otherwise, and the public in consequence badly humbugged?

There is a good deal of looseness in the way in which awards are made at fairs which needs correction, and which must be corrected in some way, or the time will soon come when all awards coming from such occasions will be regarded by the public as worthless.

Fall Feed for Milch Cows—How best Secured—Turning Stock upon Meadows—Close Cropping Injurious—Its effect upon Irrigated Meadows—Is Corn Fodder or Clover best for Soiling Milch Cows at Pasture in Summer and Early Autumn?—Mr. Blood's Experiment in Soiling on the Mohawk Flats—Quantity of Hay cut in Herkimer County—Manufacturing of Liquid Manure for Garden Purposes, &c.

There was a considerable number of Herkimer county farmers at the Court House, Herkimer, to discuss the question of "How to procure the best and most economical fall feed for milch cows."

This was the first meeting of the Farmers' Club after its harvest vacation, and there was a much better "turn out" of farmers and others than was expected. Hon. Josiah Shull, of Mohawk, opened the discussion. He commenced by saying that the fall feed on meadows this season was not very good, especially where the haying was not commenced early.

It was the practice among most farmers of Herkimer to turn stock into meadows to feed off the aftermath, and not much attention was given to the prevention of close cropping. When the aftermath is depended upon for carrying through the stock in fall pasturage, farmers regard the pasturing of meadows as a necessity. The cattle must have feed, and the necessity of the hour must be attended to, taking the chances of future losses. He regarded the close cropping

of meadows as a very bad practice. The roots of the grass were pulled out by stock, the meadows were made bare and exposed to the sun, and the damage did not end here, for the vitality of the grasses was so weakened that they were ill prepared to withstand the frosts and cold of our rigorous winters. Should it happen that the fall of snow be light, or it be swept off the meadows, leaving them exposed, the injury from close cropping would be found to be serious. The cost of preparing the land and getting it into a good meadow was very considerable. It sometimes took years to get a meadow into high condition, so that it would yield abundant crops. A good meadow was one that could be depended upon, year after year, in yielding a fair crop, say two tons of hay to the acre. If you take such a meadow and by close cropping reduce the yield for the next year to a ton per acre, the damage to the first crop is in the neighborhood of $10 per acre, but this is not all, since the influence extends over other years. Perhaps it was not admissible in a great dairy region like this, to exclude stock entirely from meadows, but cattle should not be turned in until a good, vigorous growth of grass had become established, and then this growth should be only partially fed off. He would not object to feeding meadows in this way, though some had contended that even this might be injurious. But how are we to get a vigorous and heavy growth in time for turning stock upon it, so as to secure a valuable return in milk? It is presumed that the land is in good heart, and the grass in good, healthy condition. Then to insure this vigorous growth of aftermath, the haying must be commenced early. The term early is somewhat indefinite, since what would be considered early by one farmer might be regarded late by another. Early cuttings in this section are those that are made in June. It is true we sometimes have abundant fall feed on meadows from late cuttings, but in that case the weather has been extremely favorable. A continuous period of warm and showery weather starts the aftermath rapidly. Such a condition of things is not in the ordinary or general course immediately after grass is cut, and farmers have no right to base calculations on chances of this character.

If meadows are cut in June a crop of clover springs up early, and if left to head out before cattle are turned in, some of the heads will afford seed, which, scattered over the ground, operates in the way of re-seeding, thus keeping the meadow at its full production.

Clover cannot be grown successfully on wet soils. Have made

trial of it on such soils, but it failed. As to cutting the aftermath and feeding it green in the way of soiling, would prefer the cattle should graze the meadows.

Pastures begin to dry up about the last of July, and ordinarily are poor during August. Some means should be taken to provide food for stock to meet this want. In seasons of drouth, like the present, soiling becomes a necessity, if any profits are expected from the dairy. Think there is no plant so well adapted for soiling as corn fodder. It is good for milk, it yields an immense crop, and it is easily grown. Have now been feeding corn fodder to my cows for five weeks and find the relief given to pastures enables the grass to spring up and get a good start.

Mr. Lewis thought that when the after-feed of meadows was not fed off mice were apt to work, often doing much damage to the roots of grasses. Mr Shull did not regard the burrowing of mice in meadows of much account; had not experienced any loss from this source in the next year's crop. He said, rather than feed off meadows short in the fall, he would prefer to give his cattle hay if there was lack of pasturage. Mr. Lewis thought the dry weather this year commenced a month earlier than usual. Mr. Shull remarked that he commenced feeding corn fodder about the 25th of July, and if his crop held out he should continue to feed until frost came. He fed a little hay with the fodder, putting the hay down first and the corn fodder on top of it. This, he thought, gave the best result. The cattle, after eating the corn, eagerly took up the hay, showing conclusively to his mind that this change of food was essential.

Judge Graves stated that he had seen a statement recommending the preparation of ground in the fall to be sown with clover for the use of soiling the following year. It was said that this plan afforded more feed and gave better results than the corn fodder. He would be glad to know whether any member of the club had tried it, or knew of its being tried?

Mr. Lewis did not think the clover crop would turn so large a quantity as corn, though it was possible the quality of the food might be better. The proportion of corn fodder which should be provided is an acre for every ten cows. He would feed twice a day, using at each feed about a third as much hay as corn fodder, and feed the cows all they would eat.

Judge Earl said there seemed to be a difference of opinion among farmers in regard to pasturing meadows in the fall. Some thought

it did no injury to the meadows, others thought it injured them very much, while others took the ground that if the after-feed was only partially fed off it was beneficial, or, at least, not injurious to meadows. Now which of these three courses was the right one, and which was it advisable to adopt. Some of the speakers had stated that close cropping was very injurious. Why was not partially cropping partially injurious? He was rather of the opinion, from what he had heard here to-day and from what he had read, that it would be better to keep stock off meadow lands altogether so far as the meadows were concerned. Mr. Lewis said when meadows were only partly cropped the droppings of the cattle compensated for the forage taken off. Sandy or gravelly soil would bear closer cropping than clay soils.

Mr. Willard stated the practice of farmers along the Hudson who shipped their hay annually to the city. These farmers claimed they could keep up the fertility of meadows, and get a fair yield year after year by keeping stock off the land, and allowing the after-feed to rot on the ground. The droppings of cattle at pasture enriched the land only in spots. The great trouble was that they were not evenly distributed over the surface, and much of it often was left where it was not needed. A heavy coat of clover aftermath if left to rot on the ground, must have considerable value as a manure, but whether sufficient to keep up the fertility of the land where the crop of hay is taken off year after year and nothing brought back to the land seemed hardly reasonable, and yet men experimenting in that way claim that it can be done. Some of the Genesee wheat growers claim that they can grow wheat and keep their land in good heart simply by growing clover and turning it under. This is a favorite way of manuring in some parts of Western New York.

Mr. Christy gave an instance of a very heavy crop of broom corn grown on the flats where the soil had been prepared by turning under clover and no other manures used.

Judge Graves instanced a poor, almost barren, sandy plain near Albany which had been brought to a high state of fertility by turning under grass crops. The land was purchased by a Mr. Osborne, and he commenced by raising spring crops, seeding with clover and turning the stubble and clover under in the fall.

Mr. Shull said he was making an experiment with winter rye for a similar purpose. The land had been planted to early potatoes, and as soon as they were taken off it was plowed and sown with rye.

He was intending to turn this under, and he believed he should get a good result from it.

Mr. Gray said his experience in feeding off the after-feed hardly agreed with that of some present. He had never cropped his flats so closely as last fall, and yet this year he had grown upon these same flats a larger crop of grass than ever before, and the after-feed now was very abundant. Upon inquiry it was found that Mr. Gray's flats were annually overflowed by the river, and hence it was stated the comparison of such lands, annually fertilized by river deposit, with uplands, would not hold good. From the experience of those owning flat lands, it appears that meadows receiving an annual overflow of the Mohawk are improved by having the aftermath fed off.

Judge Earl inquired as to the best manner of starting aftermath in addition to early mowing; whether the use of plaster immediately after the hay was taken off was advisable, or, indeed, whether any special treatment of meadows immediately after haying would be of benefit.

Mr. Lewis: Plaster would be beneficial if rain followed the application. If the weather continued dry, there would be no appreciable gain from sowing plaster.

Mr. Lawton would haul out well rotted dung, spread it evenly on the meadow, and brush down fine. He would warrant the after-feed to start after a thorough application of this character.

Mr. Small, of Snell's Bush, said he found no difficulty in getting a good growth of after-feed if meadows were cut early. Upon lands in good heart, when the aftermath was heavy, there was no injury to meadows from turning in stock, and feeding judiciously. Of course the meadows should not be close cropped.

Mr. Lewis said there was such a great variety of soil, and so many circumstances attending this question, that it would be difficult to make any absolute rule. Others, however, might think differently, and he would like to have the sense of the club taken on the question.

Judge Earl offered the following:

Resolved, That it is unwise to rely entirely upon the after-feed of meadows for the farm stock in the latter part of summer and early autumn.

He said that for uplands he was in favor of having a piece of land prepared and sowed to corn for fodder, and the proportion should be at least one acre for every ten cows. There could scarcely be a doubt as to the bad policy of relying solely on this after-feed of meadows to

carry stock along. He knew of no forage plant that could be so easily raised as corn for the purpose of soiling cattle; it was good for milk and good to keep the animal in condition, and he doubted whether there was any other plant that would so nearly fill all the requirements demanded for soiling during the season named.

Judge Graves said he was by no means satisfied that corn was the best plant for soiling milch cows. He doubted whether there was any better milk producing food than good grass, and he was not in favor of this club endorsing any special plant or any special theory without it had been proved by abundant experiment. He referred again to the practice of preparing ground in the fall and seeding with clover.

Judge Earl said he had no wish that the club should endorse anything but facts. The farmers of Herkimer had had long experience in the management of dairy stock. They had probably devoted more attention to this branch than any other section in the United States, and their opinions necessarily carried along with them a measurable weight of authority. The discussions of this club had been frequently quoted as authority, and they deserved consideration. A people that has carried on a specialty successfully for sixty years, would be likely to get some notions pretty nearly correct in principle.

Mr. Lewis said that corn fodder had this advantage, it could be sown at different times so as to meet the wants of stock at different periods. He thought the different sowings, say for forty cows, should be from two to three weeks apart. A vote being taken on the resolution, it was carried.

Quantity of Hay cut in the County.

To the question of what the increase of the hay crop is this year over the crop last year, many estimated it at a quarter more in the county. Mr. Lawton, who had been in nearly every town during the hay harvest, said he did not think there was much increase over last year, taking the whole county together. Some towns did not cut a pound more hay than they did last year, if as much. These towns are Schuyler, Norway, Russia, and Newport. Mr. Myers estimates the crop in the vicinity of Mohawk one-fourth more than last year. Mr. Small makes the same estimate for Small's Bush. Sheriff Weatherwax stated that upon his farm of fifty acres of meadow the increase this year has been thirty tons.

An Experiment in Soiling Milch Cows.

Mr. Blood, who has a farm of one hundred acres, flats, near Herkimer village, gave some account of his soiling operations the present year. His dairy consists of twenty-two cows. He fed hay and grain up to about the 12th of May. Then he commenced cutting the early clover and feeding them upon it in the stable; fed three times a day. The cows were kept in a three acre lot, and were allowed to run at large here, except at the time of feeding—morning, noon, and night. The quantity of land mowed over for feeding the cows was seven acres. This kept them in feed until the 15th of July. Commenced cutting grass for hay on the 22d of June, and on the 15th of July the cows were turned into after-feed of the meadows, and were no longer soiled, A part of the seven acres employed for soiling was cut over more than once, but no other food was employed for soiling than that grown on this plot of ground.

Mr. Blood thinks that one good hand (like himself) could take charge of forty head of cows, cutting and carting feed to stalls, and helping to milk night and morning. His cows did not give so much milk as those of his neighbors which were to pasture, but as the herd was mostly picked up in the spring from different parts of the county, the fault may have been rather in the quality of the cows than in the manner of feeding.

He thinks the cows consumed more than one hundred pounds of green fodder each per day, and thinks he must have fed three tons per day green food, but as none of the loads were weighed, could not say positively as to weight. Is satisfied that more money can be made by keeping up milch cows and soiling in this way than by turning to pasture in the usual manner, but finds it a good deal of work and very confining.

Manufacturing Liquid Manure on a small scale for Garden Vines.

Judge Graves said the best fertilizer he had ever used in his garden for vines was prepared in the following manner: A barrel was set up in the ordinary way for a leach. Into this well-rotted horse dung was firmly packed, and water thrown in at the top. As the water leached through it was caught in a receptacle, and applied from time to time to vines as they seemed to require; their growth was extraordinary. He recommended this plan to persons who were not successful in growing cucumbers. There would be no trouble in growing cucumbers when this plan of manuring is adopted, and the yield of fruit will be enormous.

What the Herkimer County People think of Insects Injurious to Vegetation—Great Dissatisfaction at the Ravages of the Apple Tree Worm—The "Cloven Foot" in the Cabbage Patch—The Cause Discussed and Remedies Suggested—How to make the Best Sour-Krout—The Best Time for Cutting Timber to Last—Salting Down Grubs—An Experiment with Leached Ashes—An Objection to the Harrow as a Farm Implement—A Cordial Invitation to Farmers and the Public, &c., &c.

There was a small number of persons at the meeting of the farmers' club (Herkimer county), on Friday, the 13th, and but few persons took part in the discussion. The question was, concerning insects injurious to vegetation.

Mr. Whitman, having been appointed at the last meeting to open the discussion, said:

"Gentlemen—In opening the discussion before this club this afternoon, I am somewhat aware of the importance as well as the magnitude of the subject, together with the difficulty that exists in its proper examination and exposition. I suggested it not because I could throw any special light on this dark and intricate subject, but because my attention has been called to it more particularly this season by the great number of nests of caterpillars on the trees. I do not refer now to the apple tree caterpillar that deposits its eggs in a compact form on a branch of the apple tree in the fall, and makes its appearance about the first of April, but one that is smaller and commences its nest much later in the season, with less show at first, and spins a finer web for its tent. They not only infest the apple tree, but the cherry, especially the bird cherry, and many nests appear on the bitter walnut. I have seen as many as ten nests, of apparently separate colonies, on the outer limbs of trees six or eight inches in diameter.

In looking at these scattered over the farm, amounting to many hundreds, the question has been forced upon my mind whether it is safe to let these thousands of worms quietly pass from one stage of existence to another without an energetic action on my part and others for their destruction. Could we carefully trace these and other insects through their different stages of existence, and learn their propagating habits, and growth, we might learn something, the reason why our fruit is so knurly, wormy, and comparatively valueless. Fifty years ago, it was seldom that a wormy apple was found, and a person might eat apples without a continual watch for

worms. This year, although my orchard is young and thrifty, and well cultivated, there is but little fruit that is fair and sound. It may be my ignorance on this insect question that makes me anxious, but there is this truth that stands fairly in our path; that we are subject to many annoyances by insects of late years that were unknown even thirty years ago, and the future will only develop what is in store for us.

I have thus far said nothing of the annoyance of our most common insects, but have left the whole subject open for instruction from others.

Mr. Willard said: The caterpillars referred to by Mr. Whitman, are of the family described by Harris, as the fall web-worm, *Hyphantria textor*. He says: "These caterpillars whose large webs, sometimes extending over entire branches with their leaves, may be seen on our native elms and also on apple and other fruit trees in the latter part of summer. The eggs from which these caterpillars proceed are laid by the parent moth in a cluster upon a leaf near the extremity of a branch; they are hatched from the last of June till the middle of August, some broods being early and others late; and the young caterpillars immediately begin to provide a shelter for themselves by covering the upper side of the leaf with a web which is the result of the united labors of the whole brood. They feed in company beneath the web, devouring only the upper skin and pulpy portion of the leaf, leaving the veins and lower skin of the leaf untouched. As they increase in size they enlarge their web, carrying it over the next lower leaves, all the upper and pulpy parts of which are eaten in the same way, and thus they continue to work downwards, till finally the web covers a large portion of the branch with its dry, brown and filmy foliage, reduced to this unseemly condition by these little spoilers. These caterpillars, when fully grown, measure rather more than one inch in length; their bodies are more slender than those of the other Arctians, and are very thinly clothed with hairs of a grayish color intermingled with a few which are black. The general color of the body is greenish yellow, dotted with black; there is a broad blackish stripe along the top of the back, and a bright yellow stripe on each side. The warts, from which the thin bundles of spreading silky hairs proceed, are black and rust-yellow or orange on the sides. The head and feet are black."

"I have not observed the exact length of time required by these insects to come to maturity, but toward the end of August and during

the month of September they leave the trees, disperse and wander about, eating such plants as happen to lie in their course, till they have found suitable places of shelter and concealment, where they make their thin and almost transparent cocoons, composed of a slight web of silk, intermingled with a few hairs."

"They remain in the crevices in the chrysalis state through the winter and are transformed to moths in the months of June and July. These moths are white and without spots; the fore thighs are tawny yellow, and the feet blackish. Their wings expand from one inch and a quarter to one inch and three-eighths. Their antennæ and feelers do not differ materially from those of the majority of the Arctians, the former in the males being doubly feathered beneath, and those of the females having two rows of minute teeth on the under side. From the foregoing account of the habits and transformation of the fall web-worm, it is evident that the only time in which we can attempt to exterminate these destructive insects with any prospect of success, is when they are young and just beginning to make their webs on the trees. So soon then as the webs begin to appear on the extremities of the branches, they should be stripped off, with the few leaves which they cover and the caterpillars contained therein at one grasp, and should be crushed under foot."

Mr. Lewis, of Frankfort, said he had noticed this worm the past season in great numbers on the willow and black ash, as well as upon the pear and other fruit trees. It was suggested that it would be well to cut off the limbs, follow with a wagon, gather them in, and burn.

Mr. Whitman spoke of another worm (which was larger than the common apple tree caterpillar), that he had never seen before this season, infesting fruit trees. It had a lion-shaped head, and when disturbed seemed to resent it by drawing itself up and shaking its head. It was quite destructive to trees.

Judge Benton spoke of the great prevalence of insect enemies of late years, when compared with former years. Almost every cultivated plant now had its peculiar insect parasite, so that it might almost be said that every useful plant was doomed. It had come to pass that the utmost exertion of man was required to stay the ravages of insects injurious to vegetation. This often doubled the labor of the farmer, since besides the preparation of the ground and the culture of crops, was added the labor of keeping at bay insects which spring up to destroy what one took the pains to grow. His English cherry trees of late years refused to bear crops, the curculio made its

ravages upon plums and pears, and his eighty feet of currant bushes had been entirely destroyed during the past two years. He thought the labors and watchfulness of trying to save these latter by dusting hellebore powder on the bushes to destroy the worm, was more than the fruit was worth. Some might save their currants in this way for a few years, but in the end they would tire of the labor.

Mr. Van Valkenburgh said his fruit this year, both pears and apples, had been much injured by curculio. In addition he would mention that the fruit of one variety of pears, the Flemish Beauty, was knurly and cracked. He supposed this condition of the fruit would not be charged to insects, and yet it might be possible they were the remote cause.

Mr. Lewis said some of his trees had been attacked by the "borer" this year. He had never had trouble from this insect before, and would be glad if some member of the club having had experience with the pest would give an account of its habits and the best means of its destruction.

Mr. Whitman said the presence of the borer could be easily detected by an examination of the trees. The borer made its appearance generally at the crown of the tree near the surface of the ground, throwing out chips like sawdust. They often worked along between the wood and the bark, and could be freqently traced in their course by a different color of the bark. It must be followed up with a wire or knife and killed.

CLUB FOOTED CABBAGE.

He said for some years past he had had considerable experience in growing cabbage for market, but this year he was at a loss to account for the general prevalence of "club foot" among his plants. The general impression prevailed that "club foot" came from growing cabbage year after year on the same soil. That could not be the cause of the trouble in this instance. The bed where the cabbage seed was sown was furnished with new soil. It was drawn in early in spring, and consisted of muck and vegetable mould, the seed was sown but many of the plants after coming up and before ready to set, grew "club footed." It was something he had never seen or heard of before. These, of course, at the time of setting were discarded and none set but what were apparently healthy, yet hundreds of plants after they were set grew "club footed" and were worthless. The diseased varieties were the Winingstat and Early Wakefield for the most part.

Cause of Club Footed Cabbages and the Remedy.

Mr. X. A. Willard, by way of throwing some light upon the trouble complained of above by Mr. Whitman, said that a most frequent cause of club footed cabbage comes from the larva of an insect said to be that of *anthomyia brassicæ*, and probably other species also. Possibly some peculiar condition of the soil or climate, the want of some element in the soil, the presence of which is needed to develop properly the plant, and enable it to withstand repeated insect attacks, which terminate in hopeless disease, may occasionally, and often has much to do in the matter. Doubtless some of the laws at least, which govern vegetable and animal life, are not so very dissimilar. Starvation, or the employment of food lacking in some important element of nutrition, is a fruitful source of parasites, which cause disease and death in animals. And in vegetables disease it is not easy to say how far a low order of insect life may result from feeding plants with food composed of elements unadapted to their growth and development. We know that plant lice are amongst the most troublesome and injurious pests the farmer and gardener have to contend with, infesting wheat, turnips, beans, peas, hops, cabbages, roses, apple, cherry, and other fruit trees.

They are described as being furnished with a short beak, through which pass three of the finest bristles; these the animal inserts through a pore of the cuticle, the central one being tubular and acting as a siphon. Thus the aphides imbibe the juices from the leaves and stems, sometimes causing distortions from the vessels being wounded and the circulation of the sap interrupted.

If it were not for the unceasing vigilance of carniverous and parasitic insects there would be no check to their multiplication. Owing to the fecundity of the *aphides*, crops suffer severely from their presence in a short space of time. The eggs are sometimes deposited on the buds and leaves, but nothing is known of the locality where they are secreted by many species; it remains a perfect mystery; and this part of their economy is well deserving the strictest attention of the cultivator, if he hopes for a remedy against their incursions.

It is a still more startling fact that the spring broods are all females and do not require any intercourse of the sexes to render them prolific. They are pregnant at their birth, and if the nit (as it is termed) brought forth by the fly in the spring be taken and kept

entirely excluded from its companions it will be able to produce young, and in this way for many generations. This will explain their otherwise marvelous multiplication. An eminent naturalist has calculated that from *one* egg 729,000,000 of plant lice might be produced in seven generations. Reaumer has stated of another species that nearly 6,000,000,000 may be produced from *one* female in *five* generations. It is a generally received opinion that the aphides infesting different plants are a distinct species. It appears, however, that occasionally a species will migrate and swarm upon any plants that may fall in their way; but such cases are exceptions.

It appears also that when club foot attacks cabbage and is caused by the larvæ of an insect, the bottom of the stem or portions of the root enlarge and become more or less strongly tuberculated with globose or elongated warts, each of which contain one or sometimes two larvæ in separate cells. The plant is in consequence unhealthy, and never arrives at perfection, besides being peculiarly liable to decay. It is most prevalent in ground which has been repeatedly cropped with different species of the cabbage tribe, but it is not confined to such localities. It is said that it never occurs on the coast where the cabbage is indigenous.

Several remedies have been suggested; change of cropping; or a thick dressing of wood ashes, charcoal dust or marl is generally successful.

Sometimes a mixture of wood ashes and road scrapings is placed in every hole made by the dibble, so that the roots of the young plants may at once come in contact with the alkaline substance. Deep trenching and dressing with quick line is recommended. The *Gardener's Chronicle* recommends an application to the roots of the young plants of the following: "One gallon of fresh soot and one pound of saltpetre reduced to a powder and mixed with water to the consistency of tar. The root of every plant is dipped in this mixture before planting." This plan is said to be perfectly efficacious.

A WORD ABOUT SOUR-KROUT.

To the question of Mr. Willard as to the best manner of making sour-krout, Hon. W. I. Skinner said in the first place a properly shaped tub should be procured. It should be made flaring with smallest end at the bottom. When barrel shaped tubs are used, the cabbage shrinks or falls away from the tub, leaving a space between the tub and cabbage, causing it to decay on the edges, and

injuring the flavor of the rest. This would be avoided by using the tub suggested. It should be made of ash or oak wood. Having provided the proper tub, go into the field and select good sound heads, cut and trim the leaves, then split them in two and take out the hearts. Cut with a machine, neither too fine nor too coarse, but with knives set a little over one-eighth of an inch apart. Then put the cut cabbage in the tub in layers, say of two or three inches, using a pounder to make each layer compact. One quart of salt is sufficient for a barrel of krout, to be distributed on the layers when put down. Fresh cabbage from the field makes a better article than when the cabbage is cut and allowed to wilt before using.

The tub being packed nearly full as above, a cloth is laid over the top and a heavy press put upon the cabbage, about one hundred and fifty pounds for a barrel. This is important in order to keep the mass compact while undergoing fermentation. Set in a moderately warm place until fermentation becomes active and the water appears on top, when it may be removed to the cellar and a lighter weight used on the cabbage, say twenty-five pounds. In taking out the krout for use, be careful and have it taken off evenly over the top. By digging down in the center the sides become dry, inducing decay in those parts, making waste and doing injury to the flavor of the rest. Sometimes in packing, small sound heads, say the size of a man's fist, are placed in the layers. They should not be broken by the pounder, and when the krout is fit to use they make a "delicate bit" to the lovers of cabbage cured after this manner.

Cutting Timber to last.

To the question as to the best time to cut timber for building purposes, in order that it may last a long time without decay, Mr. Skinner, who has had perhaps a larger experience in this matter than any one in the county, said he would always cut when the timber is frozen. He was aware that other seasons of the year were recommended. He had tried all seasons and with a number of varieties of wood, and no timber lasted so well as that cut in winter when the timber was frozen. He said a hemlock stick used as a stringer for bridges would last longer when the bark was left on. Had observed it often and gave as a reason that the bark kept the wood moist. He thought the best timber for sills, or for building purposes, was red elm, next in order was oak, white elm, and red

beech. For pins, the raves of wood sleds, and bolsters to wagons there was no timber he preferred to red elm.

Mr. Whitman said that white wood did not readily decay.

Experiment in Killing Grubs.

Mr. Skinner said that at a former discussion before the club, salt had been recommended as a specific for ridding the soil of worms. Last spring he plowed up an old sod where there was an immense quantity of grubs. He sowed upon three and three-fourths acres, soon after plowing, two barrels coarse salt. A day or two after the application there was rain, which dissolved most of the salt. The ground was then thoroughly harrowed and planted to corn. About half a pint of leached ashes was placed upon each hill of corn. The yield of corn was very large, and not a hill was injured by worms. He had no doubt, had there been no application of salt, that the grubs would have destroyed the corn.

Applying Leached Ashes to the Mohawk Flats.

Mr. Lewis said he had marked off equal strips or spaces upon his flat lands, applying different manures to each and side by side, as follows: Horse dung, cow manure, the sweepings of the barn yard, and leached ashes. He found the best result from the leached ashes.

Mr. Skinner had been using leached ashes on his flat lands the present fall, and would be able to report results next harvest.

A Bad Word for the Harrow.

Mr. Lewis spoke in strong terms against the harrow as an implement for mellowing the soil. He considered it one of the poorest of our agricultural implements. It was very good for making a hard, firm road bed. A good road could be made rapidly by plowing at the sides, scraping into the center and keeping the harrow constantly in motion over the loose earth. By the time the scraping was finished you had a smooth, hard road bed. He would use the cultivator in place of the harrow for farming purposes.

The discussion at this meeting was extremely rambling, but we have endeavored to present the leading facts brought out. This was the first meeting since the adjournment in August, on account of the agricultural fairs.

Potato Culture—Influence of Weather upon Quality of the Crops—What it Costs to Grow an Acre of Potatoes—Experiments with Different Varieties and their Productiveness—The Expense of Digging and Housing per Bushel—Boxes for Gathering Potatoes Recommended—Fall and Winter Management of Stock—Salting—Feeding Grain, Ships and Middlings—Experiment with Rye, Oats and Buckwheat—Feeding Whey—Warm Stables—Water and General Management of Stock in Winter, &c., &c.

The Herkimer county farmers met at the Court House at Herkimer, November 27th, to consider the question of "Winter Management of Stock." The persons appointed to open the discussions not being present the question was waived for the moment and Hon. Josiah Shull, of Ilion, was called upon to give the result of his experiments the past year in potato culture.

Mr. Shull commenced by saying, that in the first place for success in potato growing, it was important to have good soil, soil adapted to the crop and well prepared. Then the proper varieties for seed would be found to be a valuable consideration. Mr. Shull said he did not claim to have made any very extensive experiments. He had simply grown several varieties and adopted a certain order and system in their management, in order to satisfy himself as to which varieties were most profitable for him to cultivate, as well also to satisfy himself in regard to some other points upon which various and conflicting opinions prevailed.

The past season has been peculiar, and the weather has had a marked influence upon the potato, and quite different from any previously observed. The early hot weather seemed to check the growth of the plants, and with some varieties it made them unfit for early use, while it injured their quality generally, so much so as to seriously damage the reputation of some kinds. This was especially so in regard to the early Goodrich, which previous to this season has been held in high repute. This year the general complaint against this variety is that it is "wet and soggy," often small and stunted in growth, and when attaining any size disfigured with knobs and prongs, so that many have become quite disgusted with the variety. Mr. Shull attributed the above appearance and condition of the early Goodrich to the weather. The hot weather and drought in July, checked the growth of the tubers, the vines and leaves became shriveled under the influence of the hot sun, and this continuing for

a considerable length of time would, of necessity, have an important influence in producing the result which we find this year. The potato is a plant that requires to be pushed forward rapidly to its maturity, and especially should its early growth be unobstructed.

Mr. Shull described the land on which his potatoes were planted a gravelly or sandy loam, and in fine condition. On one piece of two acres a part was planted with Early Goodrich, about the 17th of April, and the balance six days later. The earliest planted matured finely about the 25th of July and made a good yield. The others, only six days later, were caught at a critical point of their growth by the hot weather, and the yield was poor and the tubers full of knobs, and only about half the size of those on the early planted ground. The soil where both lots were grown was the same, and both were treated in every respect alike except in the time of planting. About twenty loads of well-rotted barn yard manure were applied per acre to the land before planting. The other fertilizers used were plaster to absorb moisture at the time the potatoes are cut for seed. Then, just as the plants are breaking ground, a tablespoonful of the following mixture applied directly upon the hill, viz: Ashes, two parts, and one part lime, with one part plaster, all thoroughly mixed together. The seed potatoes are cut in pieces so as to have but one eye to the piece, two pieces put six inches apart in a hill, and the hills made three feet by three feet each way.

Mr. Shull thinks shallow planting the best. The rows are marked off with a common corn-marker, and the seed covered about two inches deep. The cultivation consisted in running the cultivator through the rows from time to time, and using the hoe to keep down weeds, and adopting, so far as possible, the flat culture instead of hilling up the earth about the vines, as is commonly practiced. The late varieties were treated in the same way as the early sorts as above detailed.

The early varieties consisted of early Goodrich, early Rose and Junes, The Junes were of good quality, but less productive than the others. Mr. Shull was very careful to note all the expenses of the crop, and finds potato growing more expensive than he anticipated before keeping a strict account of expenditures. He found that manuring, plowing and preparing the soil, together with cost of seed, planting, hoeing, digging and marketing the early Goodrich variety to be eighty dollars per acre. The cost of digging and marketing in July was twenty cents per bushel. The average yield of those planted first

was at the rate of 112 bushels per acre. Those planted six days later did not yield near so well. The early Rose produced at the rate of 132 pounds for every one pound of seed. The late varieties, grown by Mr. Shull, were the Harisons, Gleasons, Calicos, Colbrooks and Chilis. Of the Harisons, where large potatoes were used for seed and cut, and planted as previously indicated, the yield was at the rate of 325 bushels to the acre. Small seed potatoes of the above variety, similarly treated in cutting and planting, gave a yield of only 288 bushels per acre; making a difference in favor of using full-sized seed for planting of thirty-seven bushels per acre in the yield.

The Gleasons, good sized seed, treated like the Harisons, yielded 263 bushels per acre. Small seed, 215 bushels per acre. Difference in favor of large seed, forty-eight bushels per acre.

For the other varieties large seed was used, and the comparative yield of the different varieties was as follows:

	Bushels per acre.
Harisons	325
Gleasons	263
Calicos	245
Colbrooks	180
Chili	150

The cost of digging and housing the late varieties, at the ordinary rate of wages the past fall, was as follows:

	Per bush. cents.
Harisons	6
Gleasons	9
Colbrooks	10
Calicos	9
Chili	12

The whole expenses for plowing, preparing seed, hoeing, digging, and housing, including seed, at its selling price, viz: Harisons, $10 per barrel; Gleasons, $6 per barrel; Calicos, $6 per barrel; and Chilis, $4 per barrel, amounting to $60.50 per acre. As potato culture is becoming of considerable importance in this part of the State, Mr. Shull's statistics are of value, since the soil, the culture, and everything connected with the treatment of the crop, for the several late varieties, were precisely alike. Mr. Shull remarkd that his ground was very well adapted to the potato, was in good heart, being sod well turned under, well prepared for the crop, and the after culture sufficient to keep the plants free of weeds.

In gathering the crop, boxes holding one bushel each, are used, in order to avoid handling the potatoes twice. These boxes are made of common lathing, in the following manner: The lath are cut sixteen inches long, which gives three pieces to each lath, and thirty-six pieces or twelve lath will make a box. The pieces are nailed to four corner posts, one and one-eighth inches square and twelve and seven-eighth inches high. Commence by taking two posts and nailing the pieces of lath to them, leaving spaces between the lath until that side of the box is made, and in the same way for the other side. Then set these up so that the pieces of lath will come inside the box, and nail on the pieces for the other two sides so that the latter come on the outside of the box. In this way it will be seen the posts on the two sides project on the outside of the box. A strip of board is nailed across the projecting posts on each side for handles. The nails used for putting on the handles should be long enough to go through the posts and clinch. Then put the pieces across the bottom and nail to the lath, and add a couple of pieces from post to post across the ends of the lath at the bottom, and the box is complete. A box of this kind costs but a mere trifle. From twenty-five to thirty are needed. The boxes are distributed along the rows and filled, when they are lifted into the wagon. About sixteen boxes will fit into the wagon; then by placing another set on top of these, from twenty-five to thirty bushels of potatoes may be hauled to the cellar. The boxes are then taken off and dumped, and are ready to be used for another load. Mr. Shull says he finds this arrangement to materially cheapen the cost of housing potatoes since it avoids handling over twice, besides there is less liability of bruising or marring potatoes which he considers of some importance, as regards their better keeping, etc.

FALL AND WINTER MANAGEMENT OF STOCK.

Mr. Harris, of Fairfield, states that a few years ago he had a great deal of trouble in his herd from abortion. For the last two years his stock had been quite free of it. Most of the aborting cows had been turned off the farm but not all. Some four or five remained. He had made some change in the fall and winter management of cows. In the first place, he gave much less salt. His practice now was to give each animal a small handful of salt once a week during summer, and in the fall only once in three weeks. The salt is given in the stable. Do not salt in winter. Take more pains to keep stock in high condi-

tion in the fall and early winter. Feed grain and shorts to cows in milk as soon as grass begins to fail and is frozen in the fall. When cows have dried of their milk, feed nothing but good hay until they begin to "make bag" in spring, when a ration of grain or shorts is given daily. Do not allow stock to be out in storms, or cold bleak winds, at this season or during winter. The only change made in pasture has been in providing better access to water, and additional watering places.

Do not know as these changes from his former course of management have been the means of getting rid of the trouble, but is inclined to think that an excessive use of salt may possibly induce abortion.

Mr. Harris said he ought, perhaps, to refer to another change in his practice, which was to see to it that all dead animals be immediately removed from the sight and smell of stock; they were covered up in the compost heap. Mr. Harris gave a very interesting account of the abortion trouble, which first made its appearance on a neighboring farm in his town. He traced the disease in its progress from farm to farm until it reached his own herd, and presented a number of facts concerning it which have not been published. He was strongly of the opinion that the disease was carried from farm to farm, either from the purchase of diseased cows or the mingling of stock on neighboring farms or breachy bulls running from farm to farm. He referred to an instance of nine cows having been sold from a diseased herd and purchased by two dairymen living a few miles apart, whose herds at the time of purchase were healthy. The disease broke out in these herds and raged with great violence, while at the time all the herds about them were healthy.

Mr. Harris said he milked his cows up to January. It was not easy to dry them off before that time when they were fed good hay and were slopped. The quantity of extra feed usually consisted of bran or shorts, at the rate of two quarts per day to each animal.

Mr. Lewis in referring to the burial of "deacons" and dead animals said he disposed of them about his grape vines and his pear and apple trees. He preferred fresh or undecomposed barn-yard manures on his grass lands about his orchard, as the turf was kept looser by such application than when well-rotted manures were used.

Mr. Shell, formerly of Russia, an old dairyman and cheese factory manager, said he had made an experiment with ships and middlings

to see which was the best milk producing material. He had been accustomed for years to feed different kinds of grain and mill feed, &c., to his herd in order to get a good yield of milk in the fall and spring.

He could not see any material gain by feeding ships, but the middlings produced good results. He said there was no kind of grain better than middlings for making milk. He fed it with whey. His plan was to put the middlings in the box and as soon as the whey at the factory was ready to run off, it was run to the box and poured over the middlings. The mixture stood until night and was then fed in troughs to the cows. About two quarts of middlings mingled with two gallons of whey were given to each animal daily, and his herd made a great deal of milk. He kept thirty cows and was enabled by feeding in this way to get as much milk as his two neighbors, who had herds of thirty cows each.

He thought it paid well to feed cows in the fall, if they were giving milk apart from the additional quality of milk they would yield, as it put them in good condition for wintering, and cows kept in good condition through the winter, "come in" all right in the spring, and yielded a good quantity of milk through the season. He thought there was not much profit in feeding whey alone. Had repeatedly tried it as an experiment. Whey increased the quantity of milk, but it was of poor quality. Rye and oats ground up together, he found no better than middlings for milk.

He would not advise buckwheat as a feed for cows. It made the animals restless, caused them to scratch and rub and lick themselves too much, besides he thought it might be the source of abortions. Buckwheat, however, produced an abundance of milk. He would always dry off milch cows as early in December as possible. Cows that are milked later will not do so well next year. It was important to look to the cow's udder frequently after she had deen dried off. He always went over the herd every four or five days during the winter, drawing out any milk that could be found in the udder. Would not feed any grain or middlings after a cow was dried off, but would give them good hay during the winter. Then in the spring, after "coming in," say about a week, commence feeding grain or middlings.

Mr. Lewis said he used to feed his cows grain in spring, but had abandoned that practice. He fed now nothing but early cut hay, dried grass. He thought his cows did quite as well as when he fed

them grain, and the expense was very much less. Straw and stalks were occasionally given to his herd during the winter as a change of food. The most of his stalks were fed out in the fall in the pasture when grass depreciated in nutrition on account of freezing. He kept his cows in the stable most of the time during winter. They were turned out for half an hour at 8. A. M., and half an hour at 4 P. M. This was sufficient for exercise and water. He thought regularity in feeding was of the utmost importance. He fed his stock in the morning at half-past five, and in the afternoon at half-past four o'clock. Cows were like children in their impatience for food if not supplied at regular hours. If they were not fed and watered regularly they would fall off in flesh. Stock should always have an abundance of water, and there should be at least two watering places in a yard, separated from each other. Then the animals were better accommodated, and the weaker ones did not have to wait so long for the master cows. Dry off cows in December. Commence milking only once a day, after the last of November, and dry off as soon as you can without injury to the udder. All cows should be dry by the 25th of December, and he would prefer an earlier day if possible. We find it more difficult to dry off cows which are kept in a warm, comfortable stable, than where they were kept in a cold one. Believe the best temperature for wintering stock to be from sixty to sixty-five degrees. Regard temperature next to pure air in the winter management of stock. Stock ought to be kept in such a way that they will not shiver after drinking during the winter.

The discussion at this meeting was prolonged to a late hour, and was exceedingly rambling.

REMARKS OF MR. X. A. WILLARD, ON UTILIZING THE SEWAGE OF CITIES.

Experiments with Sewage on Grass—Nutritive Value of the Grass, &c.

The question of utilizing the sewage of towns and cities has received but little attention in this country. It is a question of the largest importance whether it be considered merely in a financial aspect or as a matter of health. It is a notorious fact that the sewage of towns and cities pollutes our streams and rivers. The refuse of the houses, the flow of organic matter, the unused leaves of vegetables, &c., form centers of decomposition and malaria.

In the country where there are open spaces, and the receptacles of filth can be placed at a distance from the houses, where there is more air and where all the conditions are more favorable, these poisons are less apparent. Yet it is not unfrequent, where slops are allowed to fill the earth in the vicinity of dwellings and are carried by rains or find their way to the surroundings of the well or spring of water used by the family, that disease and alarming attacks of fever follow.

The greater ratio of mortality in cities, as compared with the country, comes, without doubt, for the most part, from these poisons, which, if they are not taken direct from the water, permeate the air and are constantly present in greater or less quantities. At certain times and seasons when this accumulation becomes excessive, epidemics and sudden death mark the steps of the poison. In proportion as sewerage is more perfect and water pure, cities are more healthy. But however perfect the system of sewers in their ramification, an outlet must be provided. Rivers and streams whenever they are convenient, are the channels into which the large sewers empty their contents. They are the open sewers of greater or less capacity, according to their size.

The nuisance is thus removed from immediate sight, but the poisoned streams avenge the violation of natural laws by spreading disease and death. Statistics show that in the healthiest city in England the annual proportion of deaths is as twenty in 1,000. The mortality of an average healthy population is set down as seventeen per 1,000, so that throughout the towns of the whole kingdom there is a loss of three lives in every thousand, which may seem a trifle, except when taken in the aggregate. But in London, where the population is 3,000,000, the small averages amount to 9,000 lives every year, which are made a sacrifice to malaria arising from imperfect sewerage. We have not the estimates before us showing the proportion of average mortality in the leading cities of the United States, as compared with the country, but in many of them it is large. But there is another point, whenever sickness prevails there is a loss of labor and capital on account of such sickness which in large cities must amount in the aggregate to vast sums. The question of utilizing the sewage of cities has engaged the attention of the British people for some years. Commissioners have been appointed by the government to inquire into the best mode of distributing the sewage of towns and applying it to beneficial and profitable uses. In 1865, an elaborate report was made by a government commission, of which

Prof. Way and J. B. Lawes were members, exhibiting a large number of experiments, and giving very clearly some important results.

They state as the result of their labors, extending over eight years, that the right way to dispose of town sewage is to apply it continuously to land, and it is only by such application that the pollution of rivers can be avoided. That the financial result of a continuous application of sewage to land differs under different local circumstances; first because in some places irrigation can be effected by gravity, while in other places more or less pumping must be employed; secondly, because heavy soils, which in given localities, may alone be available for this purpose, are less fit than light soils for continuous irrigation by sewage.

That where local circumstances are favorable, and undue expense is avoided, towns may derive profit more or less considerable, from applying their sewage in agriculture. Under opposite circumstances there may not be a balance of profit; but even in such cases a rate in aid required to cover any loss need not be of large amount. The fact that the sewage of a city favorably located can be made a considerable source of income to the city, is sufficient to excite attention, and lead our people to make some practical application of the principle.

In the experiments showing the quantity of grass produced by using different quantities of sewage water on the land, the committee give some interesting results. Thus taking the average results of three years upon two fields, where the sewage was applied at a rate of 3,000 tons per acre per annum, a produce per acre was obtained of a little over twenty-two and a quarter tons of green grass, equal to rather more than five tons of hay. Where 6,000 tons of sewage were used the crop was thirty and a quarter tons of green grass per acre, or rather more than five and three-quarter tons of hay, and where 9,000 tons of sewage, more than thirty-two and a half tons, or about six and a half tons of hay per acre.

In the third year of the experiments, 9,000 tons of sewage per acre per annum, a five acre field yields at the rate of thirty-seven tons green grass per acre, equal to rather more than seven tons of hay per acre, while in a ten acre field the yield was thirty-five tons of green grass, equal nearly to six tons and thirteen cwt. of hay per acre.

The general result from these experiments is that there was much more total produce per acre with 6,000 tons of sewage, than with 3,000, and more still with 9,000, but the increase for a given amount

of sewage applied was less with 9,000 than with 6,000, and less with 6,000 than with 3,000.

The increase in the amount of produce, with each increase in the quantity of sewage applied, appears proportionally greater when reckoned as green grass than as hay. This appears to be due to the much greater succulence, and, therefore, less proportion of dry substance in the more highly sewaged and heavier crops.

Another point of considerable importance determined by the commission was in regard to the nutritive value of sewaged grass in comparison with ordinary grass when no application had been made. For if there is a depreciation in nutritive quality in the ratio of increased bulk it is evident nothing is gained.

The practical question to be settled is whether the amount of nutrition in the sewaged crop over a crop produced in the ordinary way, is sufficient to make it an object to use the application. Upon this point we have the following results:

In 1861, twelve cows belonging to a Mr. Campbell were carefully selected and set apart to be fed on grass alone, two on unsewaged and ten on sewaged grass, and the experiment was conducted over a period of sixteen weeks. It was afterwards continued for four weeks longer, with an allowance of oil-cake as well as grass. In 1862, three cows were selected to receive oil-cake and unsewaged, and twelve oil-cake and sewaged grass, and the experiment was continued for twenty-four weeks. In 1863, twenty recently calved cows were selected, five to be fed on unsewaged meadow grass, ten on sewaged meadow grass, and five on Italian rye grass. The design was to give each lot, grass alone for the first twelve weeks, and afterwards a certain amount of oil-cake in addition.

Reviewing the results of the experiments in which sewaged was tried against unsewaged meadow grass, it is observable that excepting in the first season (1861), the cows required more both per head per day and per 1,000 pounds live weight per week of the fresh or green sewaged than of the unsewaged grass; yet the yield of milk both per head and per 1,000 pounds live weight was, without exception, the greater with the unsewaged grass. The increase in live weight was also somewhat the greater on the unsewaged grass in 1861 and 1862, but the contrary in 1863. Reckoned in the fresh or green state in which it was cut and carted there was in fact in every case but one, and then the quantities were equal, considerably less of the unsewaged than of the sewaged grass required to be consumed for the production

of one gallon of milk. But it should be remarked, however, that the unsewaged grass was generally cut in a *much riper and less succulent* condition, and therefore contained a considerably higher per centage of dry solid substance than the sewaged.

Now when the comparison is made, not between the amounts of grass reckoned in the fresh state, but between the amounts of *dry or solid* matter which the different descriptions of grass supplied, the result was that in only one instance was there more, and in the others there was either an equal amount or even less of dry or solid substance of sewaged than of unsewaged grass required for the production of a given amount of milk.

The general result in regard to these points was that in both milk and increase, but especially milk, a given weight of animal was more productive when fed on unsewaged than on sewaged, and that a given weight of *fresh* unsewaged grass was more productive than an equal weight of fresh sewaged grass; but that a given weight of *dry solid substance* supplied in sewaged grass was more productive than an equal weight supplied in unsewaged. Referring to the experiments with meadow grass, the result (excluding the case of 1862, when the unsewaged crop in the ten-acre field was very large), was that the produce of an acre *without* sewage was competent to feed one cow for from nineteen to twenty-three weeks, ranging according to the season, or whether the grass were consumed alone or with oil-cake in addition. The same area was, with the aid of 3,000 tons of sewage, rendered capable of providing keep for two to *two and a half cows* for the same period of time, or for one cow from two to two and a half times as long, with 6,000 tons of sewage for three to three and a half times as long, and with 9,000 tons from three and a half to four times as long. The estimated yield of milk reckoned upon the total produce of grass per acre was, without sewage, 402 gallons, and with the different amounts of sewage, 1,019, 1,404¾, and 1,544 gallons respectively.

So far as may be judged from the experience which these results record, it would appear probable that, with an average supply of 5,000 tons of sewage per acre per annum to meadow land, and with cows taken indiscriminately at various periods after calving, an average of no less than 1,000 gallons of milk per acre might be expected, or more than this when cows are taken at their best and the season and other circumstances are more than usually favorable. A large number of experiments might be given, but we have presented

sufficient evidence to show that sewage can be profitably employed in agriculture. And we ask why can not some system be inaugurated by which Utica and other towns and cities of this country may take advantage of it.

Recent experiments have shown that sewage matter can be liberated from the water in which it is carried, deodorized and reduced to the consistency of ordinary guano. The process is said to be comparatively inexpensive, and thus this vast source of fertilizing material is put out of the way of detriment to man, while it may be applied with safety to every description of crop and made to subserve a very useful purpose.

We apprehend that corporate bodies may well take this matter in consideration, with the view of removing and utilizing sewage, and we have no doubt with skill in management, it may be made directly or indirectly to repay all cost. Certainly in point of health, the repayment must be large.

HERKIMER COUNTY FARMERS ON LOSSES IN FARMING—NECESSITY OF GOOD SEED AND A GOOD SEED-BED—LOSSES IN THE APPLICATION OF MANURES, &C.

There was quite a large gathering of the farmers' club, Herkimer county, at Little Falls, on January 8th, to discuss the question of losses in farming.

Mr. Whitman said, before taking up the question for the day he would like to read a letter recently received from Levi Robbins, of Lewis county, in regard to some experiments made this year with the potato crop. Mr. Robbins commenced by stating there was very little rain in the vicinity of Copenhagen from the last of July until the potato crop was harvested. Consequently the crop was cut short, probably one-quarter, on that account.

The Harison potatoes grown by Mr. Robbins were the *second* crop from five pounds of seed, and, notwithstanding the season was so unfavorable, gave a product of over 300 bushels.

Mr. Robbins states that according to his experience with the above variety, he is satisfied that in a good season with suitable ground and proper culture, 100 bushels can be raised from one bushel of seed. Indeed the first crop was at a rate more than this; and had the second crop yielded in proportion to the seed planted as did the first crop, there would have been 600 bushels. One large potato of this variety used as seed the past season produced 131½ pounds of good

sized potatoes, or two bushels and eleven and a half pounds. He thinks the quality of the Harison's to be equal to the early Goodrich for table use.

Mr. Robbins speaks of the yield of one kernel of oats which came by chance in one corner of his garden, amounting to 2,834 grains. The variety, he says, differs from any he has seen.

At the opening of the discussion, Mr. Lewis referred to the losses sustained by farmers in allowing cattle to become lousy, and several remedies were given by different members of the club for freeing cattle from this pest. Unguentum rubbed on the edge of the stanchion or put on a woolen string and tied about the neck. Hay dust, tobacco smoke, &c., being recommended.

Necessity of Pulverizing the Soil for Crops—Importance of Good Seed, &c.

Hon. Josiah Shull, of Ilion, touched upon the losses in farming, resulting from the use of poor seed, and an imperfect preparation of the soil where crops were to be grown. If soils in which there is a large proportion of clay be plowed when they are wet, or if they are worked in that condition, it will be found very injurious.

The lands bake and crack and a large amount of labor will be insufficient to pulverize the soil so that there will be a good seed bed for any crop. It was better to work the soil later; to wait perhaps a little out of season if the land then will be in good condition. Many times wet weather in May makes it almost impossible to put in crops unless the soil be worked when it is too wet. The result is a poor yield, generally not half a crop. The seed is not sufficiently covered and from having a hard poor seed bed the plants dwindle away or die out. The losses then from this source are very considerable. In gravelly and sandy soils there is not much danger from baking. Gravelly soils can be worked soon after rains without the injurious effects referred to.

Mr. Shull thought the proper pulverization of the soil for grain to be a most important thing in farming. When badly prepared, a poor crop was sure to follow, and the losses from this source were much greater than most people imagine. By a little observation and attention most of the leaks in farming from this source could be avoided.

In preparing the ground for potatoes, on gravelly soil, he had found good results by plowing under well decomposed manure, then cross-

plow the land and go over with a cultivator, and the manures are well incorporated and mingled with the soil, and good crops obtained.

Some of the members gave their experience as to the best way of preparing the ground for a crop of wheat. They would plow in the fall, then in the spring haul on well rotted manures, and spread and work them in with a cultivator, and when a good seed bed was obtained sow the grain.

Mr. Lewis thought there was great loss in hauling out decomposed manure on leachy soils, in the fall, to be plowed under.

Mr. Whitman thought that in clay soils all the manure would be absorbed, and there would be no loss.

Mr. Davis said one of the greatest leaks in farming was in neglecting to do what should be done in one day in the hope of doing it at some future time.

Immense losses, in the aggregate, were constantly occurring from this source, for work accumulated from this habit, and could not be done in its proper season. He spoke of neglecting to take proper care of seed corn, and in consequence, planting with poor seed as a very great loss, and one quite common in the country.

Seeds of all kinds require care in selecting with attention to keeping in a proper place, so that they be in good condition. A member said that one year he had taken the greatest care to select his seed corn, securing a large lot, which he hung in the loft of the barn. On the floor directly under it he placed a large quantity of soft corn, and the result was that it ruined his seed corn, not a quarter of which came up when planted.

Mr. Feeter said he had rather take corn for seed from the bottom of a crib than the best that could be selected if it had hung and been stored in the top of the crib.

Mr. Lewis thought that the leakage from using inferior seeds was very great. As to seed corn a person should go through the field in the fall picking only the best and that which ripened earliest. Then braid up and hang in a dry place.

Some members who had been very successful in saving seed corn, said that the corn as soon as husked and braided should be hung in a room where there was a fire—in the back part of the kitchen for instance, until the corn was thoroughly dry, when it could be removed to any outhouse, and if kept in a dry place would be good for years.

Mr. Whitman said, the above recommendation would particularly apply to saving sweet corn for seed. To save sweet corn successfully,

it was important to place it in a room where there was some artificial heat; for if you depended on the variations of the atmosphere to dry out moisture, much of the seed would be apt to spoil. It was very important to be careful in selecting perfect seed in the first instance.

Mr. Lewis recommended testing seed before sowing. This was very easily done, and would ofttimes save the farmer from losing a crop. Not unfrequently the land was put in fine condition, and seed sown just at the proper season; but by the time it was found to be bad, it was too late to replant, or the weather perhaps was unfavorable, and so the crop was lost. This was partially applicable to seeds for root crops.

Losses in the Application of Manures, &c.

On the above topic the principal speaker was Mr. Whitman. He said: In what remarks he might make to-day, he need not go out of his own experience to find leaks enough to dry up ordinary prosperity; and he would mention a few that would not apply exclusively to himself. He had often spoken on the subject of the leakage in the want of proper application of manure to meadow lands, and the great loss in cutting grass that would have made excellent hay if cut in season and properly cured; but by neglect in cutting, the grass becomes ripe and woody, and is but the straw of ripened grass. The loss to farmers in this item of leakage could not be estimated. He well remembered that his father, one season, let his herd's grass stand on a new seeded meadow till it began to shell, for the purpose of making a thicker stand of grass; and in 1855, he tried the same plan himself. But a greater mistake could scarcely have been made; cutting early improved the sward, while cutting late and letting the seed mature weakened the roots and impoverished the soil. When would farmers learn, that the great draft on the soil is not in growing the stalk, but in ripening the seed? When this question should be settled, it would be worth more to the farmers of this county than all the horse races that had ever taken place in it.

Another great leak in this county was the lack of carefully saving and properly applying manure. It would not require any very close observation to see that large quantities of manure are wasted and lost on almost every farm, to say nothing about that lost in villages and about manufacturing establishments. This waste was sure where the liquid manure was allowed to run into brooks or streams. This was but one of the many ways in which manure was lost, or failed to be

utilized by being gathered into a pile and increased by composting, and in this way making a fine manure, that would be in readiness for surface manuring for meadows, or for intermixture with surface soil for other crops.

What farmer could fail to see that this want of husbanding all his sources for making manure of the best kind was one of the great leaks in his farming? If all the manure in this country could be carefully saved, properly cared for, and well applied, we should be astonished at the result, even without the application of foreign fertilizers.

He thought another leak might be stopped by cooking food, especially for fattening stock. The farmer that was not in a situation to look to and manage his farming operations, would generally have a leaky vessel, that would require much outlay in pumping or it would sink.

He inquired of one of his townsmen as to his experience concerning leaks in farming, and he told him that the biggest leaks he had found was in lazy and dishonest tenants. Another leak was bad roads; another, was the want of more leakage. He referred to *drainage.*

In regard to feeding ground, cooked meal for the purpose of fattening stock, there was some difference of opinion. Some preferred the meal to be ground very fine and boiled; others found better results when the meal was more coarsely ground.

The question of "Leaks in farming, and how to stop them," was selected for the next discussion; Mr. Van Valkenburgh, of Manheim, to open the discussion on doing work out of season and with imperfect implements. Mr. Whitman to take up the subject of manures, and their proper application. Messrs. Shull and Feeter to take up other topics.

The Herkimer County Farmers on Leaks in Farming, and how to Stop Them—Doing Work out of Season—Misapplication and Waste of Manures—Using Poor Varieties of Seed—Experiments with Potatoes—Utilizing the Refuse of Tanneries, &c.

There was quite a large meeting of farmers and others, at the court house, in Herkimer village, on Friday, the 22d inst., to discuss the question of "Leaks in Farming, and how to stop them."

The first speaker was Chas. Van Valkenburgh, of Manheim, who said one great leak in farming, he found from experience and observation, was performing labor out of season. He had known farmers to

be from one to four weeks behind with their work through the whole season. He was convinced that any farmer that was two weeks behind with his work on a 200 acre farm, would find that it would cost him from $50 to $100 more to perform the same labor, than it would if he had done everything at the proper time. If he is two weeks behind, he has a large quantity of work accumulated on his hands, in consequence of which he is obliged to slight some of it, with the promise of doing it better when he has more time. When through with a piece of work, he drives to the side of a fence or barn and leaves his machine or whatever tool he may have been using, exposed to the weather until it gets rusted and the wood work decayed, when he puts it away with a loss both in time and money.

Considerable time will also have to be spent to put the same article in good working order when needed again, while it will last only about half the time that it would with proper usage. When a man is behind with his work, it is always a hard matter to overtake it, and if every one knew how much easier it was to do work at the proper time, they would never allow it to accumulate on their hands. As long as a man was doing work out of season, he was working at a disadvantage, and this Mr. Van Valkenburgh estimated was a leak of at least $100.

Again, in order to obtain the largest yield from any crop it was necessary to get it in the ground in good season. The potato crop, if planted early, yielded the greatest quantity and the best potatoes, they were also less liable to rot. Oats if sowed early would bring the largest and best yield, but late sowing produced a light yield and liable to rust. It was an easy matter to lose from $50 to $100 on such crops by doing the work out of season.

Mr. Van Valkenburgh then spoke of the hay crop, which he considered the most important to the Herkimer county farmers. In his opinion the hay crop should all be harvested by the first of August, but he thought as a general thing, that not more than two-thirds of it was ever secured by that time. As favorable as the early part of the season was last year for hay making, he knew some farmers to make over 100 loads after the first of August, and some made even in September. This he believed to be another great leak, for he considered this 100 loads to be worth at least $300 less than if made in July. He thought it would be much better to expend that amount in labor and good machines. He advised farmers to get good machines and take good care of them and they would have no trouble

in getting along with their work. This want of care of machinery Mr. V. considered one of the greatest leaks in farming. Some farmers get new machines every five or six years, but this was sheer nonsense. First, make it a point to always keep them under shelter when not in use. Keep everything snug and well oiled when running; clean, and oil parts liable to rust when put away; paint the wood work occasionally. About such an amount of work was necessary to be applied to all tools, either when put away or when taken out for use; his plan was to do it when put away.

He had used Wood's mower for nine years and did not see but that the principal part was as good as ever. Had used Bullard's hay tedder four years, and thought it good for twenty years longer. Seymour's grain drill he had used three years, and did not think that any of our farmers in the dairy region would wear out this machine in forty years. He considered this a very valuable machine and that it would well pay any farmer of 200 acres to own one. It is a good plaster sower, good for all kinds of grain, and all may be sown at one time if necessary. It does not require as much grain or grass seed with this machine as with hand sowing, and far better crops can be raised. He had never had such good meadows as since he had used this machine. With the use of these machines and with proper care he thought many leaks might be stopped.

Mr. Shull asked Mr. V. to state his reasons why he considered machine sowing better than sowing the grain by hand, and whether any trials had been made by the two methods on land side by side to show the difference in the crops, &c.

Mr. V. in answer stated that grain drilled in was better covered, was more evenly distributed over the ground, and being at regular distances apart must altogether result in giving better crops. He had not made any direct experiments upon his own farm, and therefore could not give the number of bushels in favor of machine sowing, but he had drilled in grain for his neighbors on land where a part of the field had been sown broadcast by hand. The crops showed a considerable gain in favor of machine sowing.

Mr. Countryman, of Herkimer, said he had a machine similar to that recommended by Mr. Van. V., but it did not sow plaster well.

Mr. Lewis, of Frankfort, could sow plaster with the machine at the rate of one hundred pounds per acre, and have it spread over every blade of grass in the field.

To the question of drilling corn for fodder, by Mr. Earl, of Herkimer,

Mr. Countryman said that he preferred to have the drills or rows nearer together. He would sow at the rate of four bushels of seed to the acre. He wanted the corn so thick that the growth of stalks would be small and fine, so as to be wholly consumed by stock without waste.

Waste of Manure, &c.

Mr. Whitman being called upon to speak of the losses resulting from a misapplication and waste of manures, made the following remarks: He commenced by saying that at the close of our last meeting, he was appointed to open the discussion of that portion of the subject relating to manures within the reach of ordinary farmers, including securing, retaining, and applying them. He had reduced the subject to as few simple heads as possible, and yet either of the three was sufficient for much thought and careful experiment; more than he had ever given of the first or should ever accomplish of the latter.

By securing manure, he meant that careful gathering of all material on the farm, that would otherwise waste, and put it in a condition to become a fertilizer.

Now let us ask ourselves as we look about our yards and buildings, can we not add more to the manure heap; can we not prevent the waste from the barn yard that is running off into a stream of water, that is perhaps carrying it beyond our reach, or that is gathering in some foul pool that has received it for many years, making no returns? Can we not save more manures from the hog sty, the hen house, and other outbuildings? Can we not utilize the slop from the house, the kitchen, and dairy? Can we not utilize the bones that are lying about the premises? Can we not drain some swamp and use the excess of muck and turf for an absorbent of liquid manure? In short, can we not largely increase our pile of manure and make it pay us well for expenses? Had we not better do more of this and purchase less of foreign and doubtful fertilizers, so called? Mr. Whitman said, that by retaining manures, he simply meant their proper protection from weather after they were gathered. The theories and practices on this were various. Upon this subject he wished to learn more. Let science and experiment combine to tell us when manure is in the best situation for the fibrous roots to feed upon. Is the vault or cellar the best place to retain its fertilizing properties? Shall it be hauled on the land and spread when green, or shall it remain in a body till it has passed through a stage of decomposition that more fully makes it a ready fertilizer for the growth of plants?

Many claim that a shed is the only proper place for manure. But it would require some arrangement to conduct off a proper quantity of moisture; to keep it from heating too much, especially manure from the barn stable. A heap of manure might be made in the yard by supporting the sides, that would well repay the trouble of careful management. Probably no material was so cheap and convenient to use about our stables and manure heaps for the purpose of retaining ammonia, as gypsum. Salt, dry clay, and copperas, were good, but not as cheap or easy of application. But the man that applies lime and ashes to his compost heaps, suffers a loss that he cannot recover.

In conclusion, Mr. Whitman said that in applying manure that was well prepared, a few common sense considerations were all that was necessary. Have the manure fine, and nicely incorporated with the soil, and near the surface. Manure in lumps on the surface could be of little use.

Mr. Earl referred to the large number of muck deposits in the town of Warren, Herkimer county. He said the whole town may be said to be filled with a series of basins, the surface of the land resembling the waves of the sea. All these depressions or basins contained muck and peat in some places of great depth.

Mr. Lewis said the best plan of treating the muck was to haul it out and let it lay a year; or lime and ashes might be composted with it. When dry it could be used with great advantage about stables as an absorbent of liquid manures.

Mr. Earl said in an old work, "Rees' Encyclopedia," the valley of the Mohawk was referred to as being so fertile that the farmers to get rid of the manure upon their farms hauled it to the river and let the stream wash it away. Such a waste and ignorance in farming seemed almost incredible to the present generation.

Mr. Lewis in answer to the question from Mr. Earl, in regard to mixing lime and ashes with barn yard manure, said that such application would set the ammonia free, rendering the manure almost worthless.

Mr. Whitman referred to a communication of Levi Bartlett, in the *Country Gentleman.* Mr. Bartlett mixed ashes with the droppings of the poultry house and applied the mixture to corn. In that case, both the lime and the manure were in a dry state, and as the mixture was applied directly to the crop and covered with soil, no loss was sustained, as the soil absorbed all the gases from decomposition. He said that nothing was better to take out the scent of manures on the

hands than to handle soil. If any one, after milking, would go directly to the garden and work with his hands in the soil, weeding among the beds, &c., all scent would be quickly removed.

Mr. Fenner, who has a farm on the West Canada Creek, gave a description of his method of saving manures. The manure cellar was on the side of the stable. Here the solid and liquid droppings of cattle were deposited. Here dung, chaff, weeds, and other refuse material were added, from time to time. The contents of the cellar was fit to be used when about a year old, and was applied as top dressings to grass lands. The farm consists of 102 acres, twelve of which are in wood. About a third of the farm is in meadows, and they annually produce at the rate of three tons per acre. Mr. Fenner is now wintering forty cows, five calves, ten sheep and four horses. The farm carries this stock and there is always hay to spare, some is sold and some fed out to droves which are passing and stop upon the farm overnight, &c.

Mr. Earl remarked that Mr. Farmer, the former proprietor of this farm, had been able to keep seventy head of cattle the year round on the land. It was a very productive farm. Mr. Countryman, who is a neighbor of Mr. Fenner, and has always known the farm, said that some years ago it was not considered any better than lands adjoining, but since the system of saving the manures had been adopted the crops were much larger than on neighboring farms.

One of the members asked Mr. Lewis if he still adhered to his opinion in regard to the value of quack grass. In reply, Mr. L. said that one of the greatest leaks of farming was the eternal warfare on native grasses which were adapted to the soil and climate, rooting them out and sowing timothy. He could recommend growing quack grass on those soils where no other grass would grow.

Mr. Countryman said Mr. Lewis had so modified his recommendation that there was nothing to be said in reply.

Mr. Shull, of Ilion, referred to an immense quantity of quack roots hauled out in the road on a farm in Columbia. The land was so full of it that it was impossible to grow a good grain crop until the quack was taken out. He referred to the losses resulting from using inferior seed. Had experimented in using different kinds of seed in growing potatoes. The Chilis and Harisons were planted side by side, with seed of the same size and quantity, and the land treated in every respect alike. The Harisons gave double the quantity of potatoes to the Chilis. On another piece he experimented with large and small

seed. There was a difference in yield in favor of the large seed of forty-eight bushels to the acre. From these experiments he concluded that there was a loss in using small seed and a loss in using inferior varieties for seed.

Mr. Van Valkenburgh said his Gleasons yielded double the quantity per acre to the Chilis, and he thought the latter variety had deteriorated.

Mr. Shull referred to the losses resulting from using an inferior plow, a plow that did not properly turn over the sod, that did not clean well, retaining soil on the mould-board, and thus causing greater draught to the team. He spoke of the steel plow of the Remington's as well adapted to the soils of Herkimer, especially the late patterns brought out. He believed in having the best implements. When he was a boy and the mowing was done by hand, his father gave him an old scythe to work with, and he well remembered how difficult and discouraging it was to get along with it. He thought boys should be provided with the best tools that could be had, and they would be encouraged and stimulated thereby, and take pleasure in their work.

HAIR, TAN BARK, &c.

Mr. Countryman had made application of refuse of the tannery to grass lands. The fleshings and hair were mixed with tan bark and used as top-dressing with good result. His son had applied hair in planting potatoes, applied directly to the seed and covered with soil. It gave a remarkably good crop. He said Mr. Waterman, of Newport, had top-dressed meadows with spent tan bark. The meadows were run out and not producing much. The bark was applied after laying a year, and it renovated the meadows so that they yielded good crops. He had plowed under hair for grain crops, but the trouble was that the grain grew too stout and lodged. Hair lasts better than any manure he had ever used.

Mr. Whitman said he had used the refuse hair from the tannery for cabbage and turnip crops with the best results.

Mr. Countryman said tanners used a great deal of hen manure in tanning, it cost at the tannery from three shillings to four shillings per bushel. The liquid is usually allowed to run away, but he should construct a tank for collecting it and apply it to his lands.

Curing Heaves in Horses, &c.

Mr. Lewis said he had been successful in curing heaves in horses by feeding a tablespoonful of powered gypsum twice a day to each horse. He mingled it with ground feed.

Mr. Whitman gives for the heaves, shoemake bobs. He picks off the bobs in the fall, dries them and gives the animal a handful in its feed twice a day. Horses like this and will readily eat it.

Mr. Lewis mentioned some of the losses in farming, as follows:

Leaving Gates Open.

He had recently had an accident occur to one of his cows from neglect in not shutting gates. It is a loss to have bars instead of gates on a farm. There was a loss in having poor division fences, as they often set farmers by the ears, often resulting in damage to crops, &c. There was a loss in providing cold stables for stock. He believed a warm stable properly lighted and ventilated would be a saving over the cold stable of 500 pounds of hay to each animal wintered. Another loss is in feeding uncooked grain to swine. There was another loss in plowing under manure instead of applying it to the surface and working it in the soil with the cultivator.

Mr. Shull said he found hauling manure over plowed ground "up hill business."

His plan is to have the manure out before the ground is plowed, and place it in piles and in a perfectly straight line. Then plow between the rows of manure, when the latter may be easily spread upon the plowed surface. After spreading, the narrow lands where the manure was piled are plowed, the ground was gone over with a cultivator, working in the manure.

Mr. Davidson said he found in his experience that the best time to apply manures to grass lands was immediately after haying.

Annual Meeting.

The annual meeting of the club was at Little Falls on the second Friday in February, at which the following officers were chosen for 1869: President, Harris Lewis; Treasurer, Josiah Shull; Secretary, X. A. Willard.

MANLIUS AND POMPEY.

To the Secretary of the New York State Agricultural Society:

The secretary of the Manlius and Pompey Agricultural and Mechanical Association reports as follows:

The receipts of the association for the year ending January 19th, 1869, were:

Balance from previous year	$186 02
Appropriation from the State of New York	51 00
Memberships (annual)	198 00
Admission fees at the fair	195 25
Rent of stands for refreshments	20 00
	$650 27

The expenditures were:

For premiums	$129 50
rent of fair grounds	125 00
police	86 00
printing	76 95
repairs and expenses of fair	60 55
secretary, $25, annual address, $25	50 00
forage at fair	15 50
Balance to next year's account	106 77
	$650 27

The annual fair of the association was held September 24th, 25th and 26th, 1868, at Manlius, in Onondaga county. The weather was very unpropitious on the first two days; but the entries for competition were nearly as numerous as in former years, when the weather has been more favorable. Accompanying this is the report of the premiums awarded.

The following officers were elected at the annual meeting, January 19, 1869, to serve for the year 1869: Wm. F. Blanchard, Manlius, President; Wm. Manlius Smith, Manlius, Secretary; Henry Whitney, Manlius, Treasurer.

Respectfully submitted.

WM. MANLIUS SMITH,
Secretary.

MORAVIA.

Moravia, *January 27th*, 1869.

The fair of the Moravia Agricultural Society, of 1868, was in point of excellence (taking of course the fact of its being an adjourned fair), one of the finest exhibitions it has ever held. Had the weather been pleasant on the days appointed, the crowd would have been greater, and the entries much larger, although at present the record is one of the best. Quite an amount of stock, such as horses and cattle, came for the fair on the day appointed, which were kept until after the adjourned days exhibition, among them was the herd of Mr. C. Tracy of Scipio.

The entries as shown by the books were:

Horses	75
Cattle	120
Miscellaneous	440
Total	710

There were various articles of different kinds and descriptions placed upon exhibition, which were not entered for competition.

Cash on hand, 1867	$645 86
Cash received, 1868	808 04
	$1,453 90
Amount paid premiums and expended	690 89
Cash on hand	$763 01

At the annual meeting, the following officers were elected for the ensuing year: E. Greenfield, President; M. L. Everson, Treasurer; M. K. Alley, Secretary.

ONONDAGA.

Annual Report of the Farmers' and Mechanics' Club of the Town of Onondaga, for the year 1868.

This association was formed in December, 1867, and called "The Farmers' and Mechanics' Club of Onondaga;" the necessary papers being properly filed in our county clerk's office, and with the Secretary of State.

The officers for the present year are: Luke Wells, President; Henry Conkling, Recording Secretary; Wm. Sabine, Corresponding Secretary; C. C. Marlette, Treasurer.

The amount of receipts from all sources (no public monies received), by the society for the past year 1868, was sixty-five dollars ($65), principally from membership, which was fixed at fifty cents for each member.

The disbursements of the society for the same time were:

Rent of room occupied by the club	$14 00
Expenses at the annual fair	42 04
Books, paper, postage, &c. / Books for the library,	5 32
On hand January, 1869	3 64
Total	$65 00

On the 22d and 23d days of September, 1868, the society held its first fair and exhibition at Onondaga valley, and though the weather was not so pleasant as was desirable for such an occasion, the exhibition was one of which the club nor the town need not be ashamed. At least five thousand people were in attendance, and the show in all the various departments was much better than at many of the annual exhibitions of our old county agricultural society. The entries in all the various departments, amounted to 572. The fair passed off to the satisfaction of all, save in the matter of the weather, and with the conviction in the minds of all, that our first exhibition was a success. We gave no premiums, owing to the limited amount of our funds, simply the award of *best*, *second best and third best*, to those to whom such awards were made, and honorable mention, where there was no competition.

A copy of the programme of the fair, with the constitution, by-laws, officers, &c., with the publication of the awards of premiums as made, accompanies this report.

The club also put itself in communication with the commissioner of agriculture, at Washington, and has received from him such public documents and monthly reports on agriculture as are usually distributed to the various agricultural societies of the country, besides being the recipients of various packages of seeds of different kinds, which have been distributed to the members of the club, with the agreement on their part, of reporting to the club the qualities of the articles raised, and if adapted to our latitude and climate, and also if worthy of being propagated in this locality.

This club has also maintained a weekly meeting of its members, with the exception of a few weeks during haying and harvest season, for the discussion of subjects pertaining to agriculture and the interests of farmers. These meetings have been pretty well attended; have been the means not only of bringing us into better acquaintance with each other and thus making us more social, but of giving practical information, and the results of individual theory and practice, and beneficial to all.

The club have also a library of over 100 volumes, part purchased and part the donations of individual members, and other friends of agriculture, and to which we hope to add from time to time, as we shall be in possession of the means and are remembered by public bodies, and those who are disposed to assist us in so laudable an acquisition.

The above report was submitted to the Farmers' and Mechanics' Club of Onondaga, at a meeting thereof, held February 1st, 1869, and adopted by the said club, as its annual report to the New York State Agricultural Society, for the year 1868, and ordered to be forwarded to the Secretary thereof.

LUKE WELLS, *President.*
H. CONKLIN, *Secretary.*

OSWEGO FALLS.

To the Secretary of the State Agricultural Society:

In accordance with section eight, of "An act to incorporate the Oswego Falls Agricultural Society," passed April 29th, 1868, the undersigned, president, secretary and treasurer of said society, respectfully make the following statement of the transactions of said society since its incorporation as aforesaid:

The fiscal year of said society ends the second Wednesday in January in each year; that being the time fixed by said act of incorporation for its annual meeting.

The annual exhibition of said society was held at Oswego Falls, and within the territorial limits of said society, for the year 1868, on the 22d, 23d and 24th days of September.

The whole receipts from said fair, from all sources, was $2,348.

The whole disbursements, including miscellaneous expenditures and premiums, was $2,118.56; leaving on hand and unappropriated the sum of $229.44.

There are no debts or claims outstanding against said society.

The printed list, hereto attached, is a statement of premiums awarded, to whom paid, and for what purpose. There is also attached hereto the circular issued by said society for its annual exhibition; and in which is included the premiums offered, the act of incorporation, general rules and regulations, and list of officers and judges.

This society is not in receipt of any State aid.

It is claimed by the foregoing, that the citizens within the territorial limits of this society are determined, and are entitled, to maintain a prosperous society. By section seven of said act of incorporation, it will be seen that the officers of the society are made jointly and severally liable for all debts due from said society. This, in case of an unsuccessful fair, on account of weather or other causes, would be a great burden upon the officers, most of whom perform much labor without compensation. Any aid that would not depend upon the uncertainty of a successful fair would be very desirable. Besides this, the society desire, as soon as a sufficient amount of funds accumulate, to make it safe, to purchase grounds and erect suitable buildings.

It is therefore respectfully urged that the Secretary of the State Society use his influence in placing the Oswego Falls Agricultural Society upon an equal footing with other county societies as to State aid. If this can be secured, it is promised that this society shall become a permanent aid to the interests of agriculture in this locality.

ROBERT OLIVER, *President.*
R. C. KENYON, *Treasurer.*
WM. C. STEPHENS, *Secretary.*

Dated at FULTON, *Jan. 9th*, 1869.

OTISCO.

To B. P. JOHNSON, Esq., *Secretary N. Y. State Agricultural Society:*

The seventh annual fair of the Otisco Farmers' and Mechanics Club was held on the 7th of October, 1868, at Otisco Center. The roads were good; weather fine; the attendance large, and the exhibition of horses, oxen, cows, young cattle, and sheep was very good.

The samples of butter and cheese showed that our town ranks high in the production of these articles. Of grain, fruit, and vegetables, we had a fair show in quantity and quality. Floral Hall was well decorated with beautiful flowers, paintings, fancywork, and

articles of domestic manufacture. I think horse racing or trotting connected with agricultural fairs is an unmitigated evil. I was gratified to see the announcement that the Berkshire (Massachusetts) Agricultural Society had voted to abolish all premiums for trotting horses. Let others do likewise. The address was delivered by F. W. Hale, Esq., of Tully.

Expenses for the year	$165 96
Receipts for membership and subscription.....	116 77

Officers elected at our annual meeting, January 4th, 1869: C. E. Niles, President; J. L. Niles, Secretary; J. H. Redway, Treasurer; L. Bouttelle, Corresponding Secretary.

Yours truly,

L. BOUTTELLE.

Corresponding Secretary.

POMFRET.

FREDONIA, CHAUTAUQUA CO., N. Y., *March 3d*, 1869.

Secretary New York State Agricultural Society:

DEAR SIR—The officers of the "Farmers' and Gardeners' Club of Promfret" (name of township), for the current year, from January 2d, 1869, are as follows: President, Ira Porter; Vice-President, U. E. Dodge; Secretary, Treasurer and Librarian, A. Z. Madison.

We have regular meetings the first saturday evening of each month, also occasionally special meetings, and meetings once a month at Milford, in the west part of the town, four miles from Fredonia, to accommodate the members in that section.

Truly yours, &c.,

A. Z. MADISON,

RIDGEWAY.

MEDINA, N. Y., *March 24th*, 1869.

Secretary State Agricultural Society, N. Y.:

The undersigned corresponding secretary of the Ridgeway Agricultural and Horticultural Society reports as follows: Number of names of members on our book is fifty-seven; *really active* members about fifteen, who are alive and energetic, and are being benefited by

our weekly meetings, books, reports, papers, &c., received from different quarters.

In this section we are largely interested in the raising of fruit. Many farmers are growing from five to twenty-five acres of the different fruits. I have myself eighty acres: sixty apple, ten orange quince, ten peach and pear.

We are especially interested in all that pertains to fruit and its culture, and insect enemies.

Very respectfully,

S. C. DAVIS,

Corresponding Secretary.

SANDY CREEK, RICHLAND, ORWELL, & BOYLSTON.

To the Secretary of the N. Y. State Agricultural Society:

The twelfth annual fair of this society was held on their grounds in Sandy Creek, September 11th and 12th, 1868. The weather was fine and the attendance large.

There was a large show of cattle, dairy products and vegetables; the floral hall was also crowded with the productions of female skill and taste, and all reflected great honor upon the persons connected with the society.

The exhibition of horses was very fine, particularly those of speed, in which a great competition and much interest was manifested.

The treasurer's report for the year 1868, makes the following exhibit of the financial condition of the society:

Cash on hand at beginning of year	$428 86
Receipts of the year	825 70
Total	$1,254 56
Disbursements during year	$725 72
Cash in hands of treasurer	528 84
	$1,254 56

The society is out of debt and in good working condition, with the public interest increasing in its favor. The beneficial results of our labor in disseminating agricultural information, in assisting the farmer in advancing the interests of his calling, and giving him a higher appreciation of its importance, are very encouraging, and we enter

upon another year under auspicious circumstances and with most flattering prospects of future success.

Very respectfully, yours &c.

E. W. BLANCHARD,

Secretary.

Sandy Creek, N. Y., 22*d February*, 1869.

SCHENEVUS VALLEY.

Schenevus, Otsego Co., N. Y., *January* 1, 1869.

Hon. B. P. Johnson, *Secretary State Agricultural Society:*

Dear Sir—I herewith present you my annual report of the transactions of the Schenevus Valley Agricultural Society and Joint Stock Company for the year ending December 2d, 1868.

The fourth annual fair was held Tuesday, Wednesday and Thursday, September 22d, 23d and 24th, 1868. Although it rained with but very little cessation during the whole of the three days, the number of entries were one-third more than at any previous fair of the society. We account for this increased number from the plan we had adopted the past season in regard to entries, viz: That of opening the entry books one week before the fair. This plan obviated in a measure, the rush and confusion on the first day of the fair; besides, it materially assisted the secretary in his laborious duties on that day when he is generally overstocked with business. We found the plan "worked like a charm."

The show of cattle was superior to that of any previous exhibition. C. H. Jewell, of Westford, had some very fine full-blooded devons on the grounds which were greatly admired. Douw M. Webster of Maryland, exhibited some choice blooded shorthorns. There was a large display of grades of most of the improved breeds. There were very few entries of fat cattle; but there was quite a creditable show in the department appropriated to working cattle. We particularly noticed one yoke of oxen which drew high praise from the spectators, they were exhibited by E. Vincent.

The show of horses fully equaled the expectations of the visitors. There were thirty-nine entries in this class. Among those we particularly noticed as having many good points, was a three year old stallion exhibited by H. Schermerhorn, a gelding by W. J. Sloan, and a splendid pair of matched horses owned by A. L. Sloan.

The show of fine wool sheep was not equal to last years exhibition.

That of middle wool was better, than at any previous fair of the society. Among those we deem worthy of special notice, was a pen of ewes exhibited by John Tubbs. In the coarse wool department there were but eleven entries, but most of these were of superior merit. Among those that drew the most attention from the visitors, were a pen of ewes, and two bucks from the flock of Robert Hooker, a pen of ewes exhibited by A. H. Platt, and a buck from the flock of Schuyler Cole.

There were but very few hogs or poultry on the grounds. Mechanical work was also poorly represented. The fruit and vegetable department was quite well filled.

In the dairy department the quality was superior, and quantity deficient. One lot of butter made from sweet milk at the Schenevus butter aud cheese factory was of the very first quality. Ira Sherman and Joseph Chamberlin also exhibited choice samples.

We also noticed a box of seedling grapes exhibited by J. J. and E. L. Townsend, of Portlandville, in this county, under the name of "Mountain Seedling." The berry is round, dark blue, with thick blue bloom, size above medium; sweeter than the Concord. The bunch is a trifle larger than the Delaware, and often shouldered, leaf large, and vine vigorous and *very* productive. But the main and *principal* good quality which this vine is noted for is its *extreme earliness.* It was raised from seed sown on the mountains 600 feet above the Susquehanna river at this point, and it has ripened there for four succeeding years, *two weeks* before the Delaware, and three weeks before the Concord.

The ladies filled their department to overflowing. One hundred and twenty entries were made under this head. On the last day of the fair we listened to an excellent address delivered before the society by X. A. Willard, Esq., of Little Falls. We have never had the pleasure of listening to a better agricultural address.

Taking the exhibition as a whole, we have cause to feel encouraged. Although the weather was such that not only our clothes, but our spirits were somewhat dampened; still we have the satisfaction of knowing that had the weather proved favorable, the receipts would have been more than any previous fair of the society.

Our fair grounds comprise nineteen acres of land situated within a few rods of the railroad, and near a fine body of water known as Houghton's lake. We have hired the grounds for a long term of years, and contemplate making improvements from year to year, as

the state of our finances will allow. The land upon which we hold our fairs is naturally adapted to the purpose. Along the north side of the grounds for about forty rods is a small hill facing the south, upon whose grassy banks can be seated from 5,000 to 10,000 persons, where they can have a splendid view of the track, and of nearly the whole of the grounds. In the southwest corner is a beautiful grove of large spreading trees, under whose branches we have constructed a convenient eating saloon, and have a good well, which abundantly supplies us with water.

Our society has been very much encumbered by a debt contracted four years ago, at the formation of the society. More than three-fourths of this debt was contracted to make and improve the "track." This track has been the direct cause of many disputes, ending in one case with a row, whereby the society lost over five hundred dollars, by the crowd breaking into the secretary's office and robbing the secretary of that amount. It has also been the indirect cause of much ill feeling, which prevails to a certain extent in the society to the present day. We would undoubtedly have been in a more prosperous condition if we had not allowed a "race-course" within our fair grounds.

We have received during the past year twenty volumes from the State Society, which were awarded as premiums. The receipts of our society for the past year were nine hundred dollars and twenty cents. The expenses for the same time was eight hundred and eighty-eight dollars and fifty-two cents.

The following were the officers elected at our annual meeting, December 2d, 1868: President, Azro Chase; Secretary, W. W. Cone; Treasurer, H. N. Hanor.

All of which is respectfully submitted.

W. W. CONE.
Secretary.

SKANEATELES.

B. P. Johnson, *Secretary State Agricultural Society:*

The fourteenth annual fair of the Skaneateles Farmers' Club was held on the 8th and 9th of October. The exhibition was creditable, and in every way successful, although it was with some hesitation that the show was divided in order to secure the advantages of Legg hall for our in-door exhibition. Live stock, farm machinery, &c.,

were exhibited on the grounds of Mr. F. G. Jewett, near the center of the village.

The giving of a few agricultural books and periodicals as premiums for the past two years proved so satisfactory, that we resolved this year to considerably enlarge our premium list, and charge a ten cent admittance fee to the in-door exhibition; and all competitors were required to become members of the society by paying the usual fee of fifty cents. Our success will encourage us to repeat the plan, probably with some enlargements, next year. A few money premiums were offered, but those drawn have been donated to the club.

We incline to the opinion that no money should be offered as premiums at agricultural fairs; that it is better to substitute periodicals and books, improved implements, improved stock, or anything which shall incidentally contribute directly to the objects for which our fairs are held. We give no diplomas; any important use for them being supplied in our published reports.

No meetings for discussions or lectures have been held by our society during the past year, partly from want of a suitable room, and partly from some loss of enthusiasm in that direction, which we hope is not a certain sign of a stand-still or retrograde tendency in practical agriculture.

The premiums awarded in 1868 were thirty-one copies of the *Agriculturist*, seventeen of the *Country Gentleman*, thirteen of the *Rural New Yorker*, thirteen other periodicals and books, besides volumes of the State Society's Transactions.

TREASURER'S REPORT, JANUARY 1ST, 1868.

Balance on hand January, 1867		$36 59
By sale of fair building		70 00
State appropriation		51 00
Memberships and admission fees at fair		188 66
Subscription		70 00
Receipts for one year, with balance		$416 25
To expense of annual meeting at Syracuse	$8 52	
Rents of club room and hall	50 00	
Printer's bills, and other expenses of fair	66 21	
Auctioneer	1 00	
Premiums	122 60	
Total expenditures		248 33
Balance		$167 92

Officers for 1869: President, Christopher C. Wyckoff; Secretary, Chauncey B. Thorne; Treasurer, Wm. J. Townsend.

C. B. THORNE,
Secretary.

SUSQUEHANNA VALLEY.

Unadilla, Otsego County, N. Y., *February 15th*, 1869.

To B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

The twelfth annual fair of the Susquehanna Valley Agricultural Society was held at Unadilla, on Wednesday, Thursday and Friday, September 23d, 24th and 25th, 1868.

The weather was very unfavorable, it raining nearly the whole of the three days, and sometimes very hard; indeed, it may be said that it was one continuous rain, making much mud, and that deep, keeping much stock and many articles away, and many people at home; yet, notwithstanding this, there was a good show of animals, quite a display of articles, fruits and vegetables, and a good turn out of people.

The number of entries was over 800 more than the previous year, and everything combined to make this the largest and best fair ever held under the auspices of the society, had the weather been propitious.

It was a bad time to show horses and cattle, and the track was in such a condition, owing to the rains, that the usual trot had to be given up.

The mechanical department was much better filled than usual, with farming utensils and machines, while the ladies did themselves much credit and received many encomiums, for not only the number of articles exhibited, but the skill displayed in their manufacture.

The annual address was delivered by the Hon. Benjamin Carman, of Carmansville, Delaware county, N. Y., a gentleman of rare abilities and scholastic talent, who did himself much credit in the production of an able address, fitted to the occasion and filled with many practical and good suggestions for the farmer.

The Walton cornet band fully sustained its established reputation as one of the best bands in the State.

The valuable and interesting Transactions of the New York State Agricultural Society, sent us last year, were duly distributed among the members of our society, and judging from the avidity with which they were sought after, they were carefully read and appreciated, while the dissemination of the agricultural and scientific knowledge

contained in the copies of the Transactions of the American Institute, among our farmers and mechanics was conducive of much good.

Our fairs at this point attract every year a great crowd of people, and within the jurisdiction of the society (eight towns), its influence is daily seen and felt, in a better system of farming, and more attention being given to agriculture.

Very respectfully,

GEORGE B. FELLOWS,
Secretary.

THORN HILL.

Mr. B. P. JOHNSON, *Secretary of the N. Y. State Agricultural Society:*

The Thorn Hill New York Farmers' Club report for the year 1868, just past, that they have held a fair and general agricultural exhibition, at which it was thought best not to pay premiums, but simply give an honorable mention by publishing the report of the committees.

The officers for the coming year are: President, Job Harvey; Treasurer, Sidney Smith; Secretary, Allen Brown; Corresponding Secretary, S. S. Kneeland.

ALLEN BROWN,
Secretary.

THORN HILL, N. Y., *February 6th*, 1869.

TRENTON UNION.

NORTH GAGE, N. Y., *March* 6, 1869.

Secretary State Agricultural Society:

DEAR SIR — I hasten to make a report of our society for the year 1868, which I have neglected to do sooner.

Total receipts for the year	$911 21
Total expenditures	905 07

Our annual fair, held September 29th and 30th and October 1st, was not a pecuniary success, owing to unfavorable weather, but we had a very good display in all departments, particularly in the vegetable.

Only one thing is in the way, in my estimation, of this society becoming a power for good and usefulness, and that is the almost

universal evil of giving too much time and attention to trotting, neglecting more important departments.

We are about leasing grounds for ten years, and will put up good, substantial buildings for our annual exhibitions.

We number about 600 members. The following is a list of officers for the ensuing year: President, Col. Walter Fowler, Holland Patent; Secretary, George King, North Gage; Treasurer, D. W. Rhodes, South Trenton.

Respectfully yours,

GEORGE KING,

Secretary.

VERNON.

Vernon, *February* 13, 1869.

B. P. Johnson, Esq., *Albany, N. Y.:*

Dear Sir—As secretary of the Vernon Agricultural Society it devolves upon me to render you a report of our doings this past year. I am sorry to be obliged to say we have been disappointed—the elements have been against us. The feelings of our citizens have been and are good; our membership good. In fact I think the interest in the welfare of the society as great as it has been at any past time.

Our fair was advertised for the 7th and 8th of October, and opened on the 7th under the most favorable auspices. The day was pleasant, the attendance good, and the exhibition opened very good indeed, but just at night the wind began to blow, and by nine o'clock was blowing a perfect hurricane, with a fair prospect of the tent and all it contained going to destruction. We were under the necessity of getting help and removing the articles on exhibition at the earliest possible moment, taking down the tent to save its being blown to rags, and storing the whole in a barn not far distant. The morning of the 8th it had commenced to rain, and continued a heavy drenching rain nearly all day, compelling us to declare the exhibition closed. Fortunately there was but little damage done to the articles on exhibition, although fruits and vegetables were badly mixed, the wind raising the sides of the tent and sweeping whole tables into a promiscuous heap. It placed the officers in an embarrassing position as regards the awards of premiums, as the disaster occurred before but very few of the judges had made their examinations.

Notwithstanding this ill success, this great disappointment, our people are not discouraged, but are looking forward with bright hopes for the future, being unanimous in their opinions that wooden structures are far preferable to tents, and are seriously discussing the project of erecting a permanent wooden building for their future exhibitions.

Our society met January 30th and elected the following as their officers for 1869: President, Hon. Ralph McIntosh; Secretary and Treasurer, L. A. Griswold.

Thanking you for books, pamphlets, &c., received during the past year (one of which is yet being circulated among our dairymen—the report on Abortion in Cows), and trusting we shall be remembered in the future.

Very respectfully yours,

L. A. GRISWOLD,

Secretary.

VIENNA.

B. P. Johnson, Esq., *Secretary N. Y. State Agricultural Society:*

Dear Sir—The annual fair of the "Vienna Agricultural Society" held at North Bay, September 17th and 18th, was well attended, and (considering the state of the weather) a success. The treasurer's report shows a balance of forty dollars in favor of the society. The entries of stock were not as good as usual, but the display of vegetables was unusually large. The "Foral Hall" was well filled, and was highly creditable to the ladies of Vienna.

The following are the officers for the ensuing year: Dr. H. Nicholas, of North Bay, President; Frank Noble, of West Vienna, Secretary; Peter Flannigan, of North Bay, Treasurer. The books were received and distributed, for which accept our thanks.

Yours respectfully,

FRANK NOBLE,

Secretary.

West Vienna, N. Y., *December* 22, 1868.

WINFIELD.

Twelfth Annual Report of the Winfield Union Agricultural Society, January 7th, 1869.

Whole number entries at last annual fair	630
Horses	89
Cattle	50
Sheep and swine	43
Fowls	9
Grain and hops	51
Roots and vegetables	62
Fruit	67
Butter and cheese	11
Mechanical implements	18
Unspecified articles	8
	408

Ladies' Department.

Domestic articles	78
Needlework	42
Embroidery	17
Painting and drawing	24
Fancy work	8
Millinery	2
Culinary	47
Floral	3
Unspecified	1
	222

Balance in treasurer's hands per last report	$384 44
Receipts since date of last report	641 27
	$1,025 71

Expenditures, premiums paid	$377 50
Expenses since last report	287 45
Balance in treasurer's hands to date	360 76
	$1,025 71

Number of books received from State Society, twenty, which have been awarded and paid as premiums. Valuation of society property, $250.00.

T. W. MORGAN, *President.*
JAS. B. MURRAY, *Secretary.*
J. W. WARNER, *Treasurer.*

YORKTOWN.

B. P. JOHNSON, Esq., *Secretary N. Y. State Agricultural Society:*

SIR—Pursuant to the act of the Legislature, passed 1855, I present the report of the Yorktown Agricultural and Horticultural Society of Westchester county for the year 1868.

Our twelfth annual fair was held September 30th, and October 1st and 2d. The show was good and the attendance very large, considering the state of the weather, which was very unfavorable. As we have not as yet succeeded in purchasing ground for our annual exhibition, and, hence, have no building to protect our fancy articles from storm and wind, much has been kept back. We hope to be able ere long to remedy this embarrassment.

We neither feel ashamed or discouraged, however, in presenting to you the following report:

Balance from last year		$384 70
Amount received present year		558 38
		$943 08
Amount paid for premiums	$288 50	
Expenses and repairs	202 53	
		491 03
Balance in treasury		$452 05

The annual election of officers was held December 5th, 1868, and the following named persons were elected for the ensuing year: President, Barnardus Flewelling; Treasurer, David F. Lee; Corresponding Secretary, Enos Lee; Recording Secretary, Constant White.

Your respectfully,

CONSTANT WHITE,

Corresponding Secretary.

YORKTOWN, *February 1st*, 1869.

ADDITIONS TO THE LIBRARY AND MUSEUM, 1868.

Reports of Agricultural and other Societies, &c.

American.

Report of the Commissioner of Agriculture for 1866. (14.)

Monthly Reports of the Department of Agriculture.

Sixth Biennial Report of the Iowa State Historical Society, 1867.

Reports of Michigan State Board of Agriculture 1864–5–6, from Sanford Howard, Secretary.

Transactions of the Norfolk (Mass.) Agricultural Society, 1867.

Report of the New Jersey State College for the benefit of Agriculture and the Mechanic Arts, 1867, with the Agricultural Lectures for 1866–7–8.

First Annual Report on the noxious insects of the State of Illinois, by Benjamin D. Walsh, M. A. Acting State Entomologist, 1868.

Transactions of the Illinois State Horticultural Society, for 1867.

Third Annual Report of the American Dairymen's Association, with the report of the Ohio Association, 1867.

Transactions of the Otsego Co. Agricultural Society, 1867.

Transactions of Michigan State Agricultural Society, 1867. (20.)

Eleventh Annual Report of the Commissioners of the Central Park, New York.

Transactions of the Worcester (Mass.) Agricultural Society, 1867.

Report of the Massachusetts State Board of Agriculture, 1867–8. (30.)

Transactions of the Illinois State Agricultural Society, 1865–6. (54.)

Transactions of the Schenevus Valley Agricultural Society, for 1867.

Reports of the Wisconsin State Historical Society, 1867–8–9.

Report of the Maine State Board of Agriculture, 1867. (30.)

Annual Report of the Boston Society of Natural History, 1868–9; also monthly sheets and reports of the several officers, for 1868.

Foreign.

Journal Mensuel de L'Academie Nationale Francaise.

L'Agricultura de Lombardia, Milan, December, 1867.

Journal d'Agriculture Pratique, Paris (monthly).

Annual Report of the Public Free Libraries of Manchester, 1868.

Transactions of the Highland and Agricultural Societies of Scotland; No. 3, fourth series.

Transactions of the Royal Agricultural Society, of England; second series, vol. 4, 1868.

The Trades Journal of the Grand Duchy of Hesse, 1867; from the Consul General of Hesse.

The Agricultural Journal of the Grand Duchy of Hesse, 1867; from the Consul General of Hesse.

Reports of the Sessions of the Bavarian Royal Academy of Sciences, 1866, vol. 2 parts 2, 3, 4; 1867, vols. 1 and 2, parts 1 and 2.*

Annual Reports of the Alms House, in Augsburg, 1849 to 1865.*

Annual Reports of the Institution for Cretins, Ecksberg, 1857 to 1866.*

Annual Reports of the Alms House at Regensberg, 1845 to 1865.*

Reports of the Public Hospital at Nuremberg, 1860–65.*

Eighth Report of the Academy of Natural History; Offenbach on the Main.*

History of the Citizens' Hospital of Straubing, 1858.*

Account of the Benevolent Society of Nuremberg, 1864.*

Catalogue of the Collections of Natural History and Zoology; Leipzig, 1868.*

Transactions of the Zoological and Botanical Society of Vienna, 1867.*

Descriptions of the Vascular plants in Hungary, and Slavonia, not included in Koch's Synopsis, by Dr. August Neilreich; Vienna Royal Zoological and Botanical Society, 1867.*

Diatomaceæ of the Tatra (Carpathian) Range, by J. Schuman, Vienna Royal Zoological and Botanical Society, 1867.*

Monograph on the Sciarians, by Johann Winnertz, Vienna Royal Zoological and Botanical Society, Vienna.*

Journal of Agriculture and Forestry of the Prussian Provinces; Königsberg (weekly) for 1867.*

PUBLIC DOCUMENTS, ADDRESSES, &C.

Census of Iowa, 1867.

Hon. Marshall P. Wilder's Address at St. Louis, Sept. 1867.

Annual Report of the Adjutant General of New York, 1867.

Description of the Champion Mowing and Reaping Machine, Champion Works, Springfield, O.

Prairie Farmer Annual, 1868.

Diagram showing the effects of Meteorological Influences on Mortality in the city of New York, by Wm. Faulds Thoms, M. D.

Report of the New York Hospital and Bloomingdale Asylum, 1867.

Hovey's Illustrated Guide to the Flower and Vegetable Garden, 1868 (Hovey & Co., Boston).

Memorial of Pioneer Silk Growers of California (J. N. Hoag and others) to the Legislature.

Catalogue of the Library of the Corporation of London, seventeenth supplement, 1867.

Report of the Superintendent of the Albany Waterworks, 1867.

Pamphlet on Salt, published by the Onondaga Salt Co.

Report of the State Geologist of New Jersey, for 1867.

R. H. Allen & Co., 189 Water street, New York, Catalogue of Implements, &c.

On the exhaustion of the Soil and renewal of its Fertility, a paper read before the Central Farmers' Club, by J. J. Mechi.

Speech of the Hon. John Rose, Finance Minister in the Canadian House of Commons, April 1868.

* From the Royal Library at Munich, through C. F. Hagadorn, Esq., Consul General of Bavaria; Philadelphia.

Inaugural Address to the law class of the University of Virginia, by Stephen O. Southall, 1866.

Catalogue of the University of Virginia, 1866–7.

Address before the Steuben County Agricultural Society, by Major-Gen. W. W. Averill.

Thirty-first Annual Report of the Massachusetts Board of Education.

Congressional Directory for the second session of the Fortieth Congress.

Eleventh Annual Report of Wilmington (Del.) Institute.

American Hay Tedder (pamphlet) Ames Plow Co., Boston.

Public Accounts of the Province of Canada, 1867, from Major L. A. Huguet Latour,

Catalogue of the Michigan State Agricultural College, for 1868.

Library.

Coates' Herd Book of Short Horn Cattle, vol. 17, from Henry Strafford, Esq., Editor.

Atlas of Montgomery and Fulton Counties, Stranahan & Nichols, 95 Maiden Lane, New York, from the publishers.

Canada Herd Book of Short Horn Cattle, vol. 1, compiled by the Secretary and revised by a Committee of the Board of Agriculture of Upper Canada, presented on behalf of the Board, by Hugh C. Thomson, Esq., Secretary.

Transactions N. Y. State Agricultural Society, 1849, and Patent Office Report, 1848, from Hon. W. A. Dart.

Memoirs read before the Boston (Mass.) Society of Natural History, vol. 1, part 3, from the Society.

Smithsonian Contributions to Knowledge (fifteenth vol.), from Professor Joseph Henry, Secretary of the Smithsonian Institute.

Encyclopedia Brittanica, eighth edition, twenty-one vols. and Index, presented by Thomas Hall Faile.

Black's General Atlas, with the American maps, royal 4to, Edin., 1867, presented by Thomas Hall Faile.

Le Bon Jardinier, Horticultural Almanac for 1868, containing the general principles of culture; work of the garden for each month; description history and directions for culture of all culinary and useful plants, bulbs, flowering plants, fruit forest and ornamental trees; and elements of Botany, &c., by MM. Vilmorin and Louis Vilmorin, Prof. Decaisne, and MM. Naudin, Neuman and Pepin; 24mo, pp. 930, Páris; Librairie Agricole de la Maison Rustique; presented by Madame Veure Louis Vilmorin.

Museum.

Photographs of Jersey Cows, presented by Charles L. Sharpless; Philadelphia.

Specimens of Indian corn, by S. E. Spoor, Hebron, Washington Co., N. Y.

Specimen stalks of rye, length seven feet eight inches, by J. W. Swart, Crane's village, Montgomery Co., N. Y.

The original Newbold Plow, believed to be the first cast iron plow ever made in America, invented and made by Charles Newbold, of Burlington Co., N. J., presented by John Black, Mount Holly, N. J.

Ox Horns, a pair of very beautiful horns of the Sicilian ox, purchased at Palermo, and presented by H. Wells, Aurora, N. Y.